ENVIRONMENTAL SERVICES
SPB05-894P-J

1. PARTIES

THIS CONTRACT, is entered into by and between the State of Montana, Department of Administration, State Procurement Bureau, (hereinafter referred to as "the State"), whose address and phone number are Room 165 Mitchell Building, 125 North Roberts, PO Box 200135, Helena MT 59620-0135, (406) 444-2575 and **KC Harvey Inc.**, (hereinafter referred to as the "Contractor"), whose nine digit Federal ID Number, address and phone number are 20-5811880, 233 Edelweiss Drive Unit 11, Bozeman MT 59718, and (406) 585-7420.

THE PARTIES AGREE AS FOLLOWS:

2. PURPOSE

The purpose of this term contract is to establish a list of Environmental Service Providers in several service areas. All qualified offerors will be assembled into a multiple contractor term contract for use by state agencies and other public procurement units. The State makes no guarantee of use by any agency-authorized access to this term contract. However, through data conveyed by the Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, and Montana Fish, Wildlife and Parks, it is anticipated that this term contract should access approximately 2.5 million dollars or more annually.

3. EFFECTIVE DATE, DURATION, AND RENEWAL

3.1 Contract Term. This contract shall take effect upon execution of all signatures, and terminate on June 30, 2007, unless terminated earlier in accordance with the terms of this contract. (Mont. Code Ann. § 18-4-313.)

3.2 Contract Renewal. This contract may, upon mutual agreement between the parties and according to the terms of the existing contract, be renewed in one-year intervals, or any interval that is advantageous to the State, for a period not to exceed a total of four additional years. This renewal is dependent upon legislative appropriations.

3.3 Addition of Analytical Laboratory Contractor. Proposals will be accepted between April 1 and May 1 of each calendar year from current firms requesting review of their qualifications to perform Analytical Laboratory Services as originally requested under RFP SPB05-894P. The state will evaluate each proposal received in the exact manner in which the original proposals for other categories were evaluated. If proposal passes the requirements as evaluated to perform Analytical Lab Services, the state will update that firms term contract to include the Analytical Lab Services category contingent on said firm being in good standing otherwise.

4. NON-EXCLUSIVE CONTRACT

The intent of this contract is to provide state agencies with an expedited means of procuring supplies and/or services. This contract is for the convenience of state agencies and is considered by the State Procurement Bureau to be a "Non-exclusive" use contract. Therefore, agencies may obtain this product/service from sources other than the contract holder(s) as long as they comply with Title 18, MCA, and their delegation agreement. The State Procurement Bureau does not guarantee any usage.

5. COOPERATIVE PURCHASING

Under Montana law, public procurement units, as defined in section 18-4-401, MCA, have the option of cooperatively purchasing with the State of Montana. Public procurement units are defined as local or state public procurement units of this or any other state, including an agency of the United States, or a tribal procurement unit. Unless the bidder/offeror objects, in writing, to the State Procurement Bureau prior to the

award of this contract, the prices, terms, and conditions of this contract will be offered to these public procurement units.

6. TERM CONTRACT REPORTING

Term contract holder(s) shall furnish annual reports of term contract usage. Each report shall contain complete information on all public procurement units utilizing this term contract. Minimum information required to be included in usage reports: name of the agency or governmental entity who contacted you regarding a potential project; project title; agency contact person; if the project was not successfully negotiated, state the reason; number and title of contracts received; total dollar amounts for contracts received; the names of your company personnel involved in the project; and project status as of usage report date. The report for this term contract will be due on July 20th of each year.

Reported volumes and dollar totals may be checked by the State Procurement Bureau against State records for verification. Failure to provide timely or accurate reports is justification for cancellation of the contract and/or justification for removal from consideration for award of contracts by the State.

7. COST/PRICE ADJUSTMENTS

7.1 Cost Increase by Mutual Agreement. After the initial term of the contract, each renewal term may be subject to a cost increase by mutual agreement. Contractor must provide written, verifiable justification for any cost adjustments they request during each renewal period. Contractor shall provide its cost adjustments in both written and electronic format.

7.2 Differing Site Conditions. If, during the term of this contract, circumstances or conditions are materially different than set out in the specifications, the Contractor may be entitled to an equitable adjustment in the contract price. The Contractor shall immediately cease work and notify, in writing, the State of any such conditions necessitating an adjustment as soon as they are suspected and prior to the changed conditions affecting the performance of this contract. Any adjustment shall be agreed upon in writing by both parties to the contract.

7.3 Cost/Price Adjustment. All requests for cost/price adjustment must be submitted between April 1st and April 30th along with written justification. Requests received after April 30th will not be considered unless written approval from the SPB Contracts Officer is given to submit at a later date. In no event will cost/price adjustments be allowed beyond May 15th. All requests that are approved will be incorporated by contract amendment and made effective July 1st of the next approved renewal period.

8. SERVICES AND/OR SUPPLIES

8.1 Service Categories. Contractor agrees to provide to the State the following services:

Water Quality Monitoring - Lakes and Streams. As part of the monitoring program, standards criteria and TMDL development, lakes will continue to be sampled collecting chemistry, physical, and habitat parameters. Stream sampling may include sediment and water chemistry, geomorphology, habitat, or sources of pollutants (e.g., pebble counts, channel cross-section, stream reach assessments, photo points, Rosgen Type II, etc GIS and remote sensing may be used to assess riparian habitats, and watershed physical characteristics.

Water Quality Monitoring - Reference Sites. As part of the monitoring program and standards criteria development, reference sites will continue to be identified and characterized as described above.

TMDL Targets. The TMDL program (within DEQ) will often need additional data in order to develop TMDL targets. Targets are quantitative water quality goals or “endpoints” that represent all the applicable narrative or numeric water quality standards. These targets, when achieved will represent full beneficial use support. This may require additional monitoring to determine reference condition when TMDL targets are based on narrative criteria or designated uses (water quality standards). Targets may be based on numeric

water quality criteria, pollutant concentrations or loads, habitat or geomorphic measures, and/or biological criteria or populations. Targets are also used to determine the existing Water Quality Impairment Status (WQIS) of the streams on the 303(d) list. In most cases, the contractor will be required to write a report, which includes a recommendation and justification for one or more TMDL targets and also compare those targets to the existing conditions to determine WQIS. Communication with the State is crucial while deriving preliminary targets to ensure TMDL consistency across Montana.

TMDL Source Assessment/Delineation. The TMDL program (within DEQ) will often need additional data in order to link water quality impairments to their sources, or to allocate sources of pollutants. This may require data compilation, investigative monitoring and statistical analysis within a specified watershed, which can be used for source allocation, or the linkage of water quality impairments to causes and sources of impairment (e.g., sediment or land use practices). Quantitative source assessments may be conducted using field-based monitoring and/or interpretation and analysis of aerial photos, digital images, or GIS coverages depending upon impairment sources and available information. In most cases, contractors will be required to write a report that identifies what the major causes of impairment are and where the major sources of pollutants are located. DEQ will also need to have all pollution/pollutant sources quantified. The quantification of these loads will assist in both source load allocations and the total maximum daily loads. In addition, data collected during source assessments must be entered into an approved database structure or format and linkage to the National Hydrography Dataset (NHD) streams layer may be requested. The department may also request a cost/benefit analysis for implementing BMPs, which can be used for developing TMDL source allocations. Communication with the State is crucial while deriving assessing sources of pollutants to ensure TMDL consistency across Montana.

Stakeholder Participation. The TMDL program (within DEQ) will often need additional assistance in order to develop implementation/restoration strategies and monitoring plans. These plans often require public involvement with the local stakeholders. These efforts typically results in developing the measures needed to achieve full beneficial use support or to monitoring the uncertainties that arise during the TMDL process. Offerors should be experienced in or have staff members with proper credentials to facilitate participation with local stakeholders.

Geographic Information Systems (GIS) Services. The State, and in particular DEQ, will need assessments that characterize a watershed and identify and quantify all probable sources of pollutants. GIS maps will be required for every waterbody that is assessed. Thematic maps may include, but are not limited to: land ownership, land use, topography, hydrology, soils, precipitation, and/or endangered species distribution. In addition, DEQ may request that GIS applications be used to facilitate the interpretation and analysis of digital images and/or other georeferenced data.

Remote Sensing. The State may consider the use of remote sensing for characterizing a watershed and identifying probable sources of pollutants. For example, indicator metrics may be calculated from an air photo. Metrics may include active channel width, Rosgen level 1 Channel types, % shade, % land use, % land cover, average flood plain width, riparian corridor fragmentation, road density, road crossings, length of irrigation ditch/area, etc. DEQ may request contractors to assist them in developing remote sensing assessment techniques or to employ developed techniques in conducting detailed assessments. All data must be entered into an approved database structure, format, or program and linkage to the National Hydrography Dataset (NHD) streams layer may be requested. If necessary, the Contractor can subcontract in order to acquire the aerial photography products. All subcontractors for this task must be approved by the State prior to initiating a contract.

Water Quality Modeling. The State, and in particular DEQ, uses contracted services in the development and/or application of watershed and water quality modeling tools and techniques in the development of TMDLs. Models may be used to assist in defining TMDL loading allocations, performing existing/potential conditions analysis, watershed scenario analysis, and/or standards attainment analysis. The types of models that may be employed include dynamic watershed loading models (i.e. SWAT, HSPF), water quality fate and transport models (i.e. QUAL2E, QUAL2K), stream temperature and/or shade models (i.e. SSTemp, HeatSource, Shadow), and multi-dimensional lake/reservoir models (i.e. CE QUAL W2). In addition, simpler modeling tools and techniques such as GIS-based Risk Assessment Modeling may be employed or

developed based on project needs and resources. The DEQ may also seek assistance in the identification and/or development of simple modeling tools that may be implemented at the desktop that facilitate quick scenario applications. These tools should be able to focus on specific water quality issues such as sediment, nutrients, salinity, etc. and be tailored to the various (eco) regions across the state.

Statistical Analysis. The State may request that large data sets be statistically analyzed for determining trends or for making comparisons. This service area may include data compilation, organization, manipulation and analysis. These analyses may be used to validate environmental targets by comparing reference data to existing data. They may also be used to establish a relationship or linkage between indicators and targets, the estimated loads and how targets link to beneficial use support. Analyses should be appropriate for the type of data being analyzed. In many cases, the contractor will be responsible for determining and providing rationale for appropriate statistical analyses to address pre-formulated environmental hypotheses. Analyses must consider spatial and temporal variations. Analyses may range from providing simple descriptive statistics to reporting multifactor predictive analyses.

DEQ Electronic Data / Information Technical Assistance. The DEQ needs to be able to easily transmit water quality data into the modernized STORET database and make it more accessible to data consumers and the public. To accomplish this, the DEQ seeks to obtain technical products, services, and support, as needed, to migrate datasets to production database system(s) and improve data flow and data quality from a variety of sources into STORET. These tasks may include, but are not limited to solutions in commonly available software products to generate data that conforms to STORET and Oracle database requirements. Specific service areas sought include, but are not limited to: technical support for data conversion, reformatting, and/or normalization of existing historic and transformed datasets; automated data validation routines or procedures designed to support specific data quality objectives; technical solutions for data entry, data capture, and data reporting, maintenance, upgrades or enhancements to existing software interfaces; technical support in the implementation of STORET; acquisition of STORET-compatible data deliverables.

Land Use Planning Services. Land use planning services would include Agricultural Land Use, Watershed Land Use or any other land planning services to benefit the state or other governmental entity. The Land Use Planning efforts can include soil analysis, crop recommendations, and irrigation recommendations to assist in developing a beneficial plan for the land in question.

8.2 Reuse of Documents. When the projects dictate a design or engineered approach, the State agrees that it will not apply the Contractor's designs to any other projects.

9. ENGINEERING ACCESS

All of the firms selected may need to have access to engineering services depending on the nature of the project. The contractor(s) will be expected to use their own best judgment as to whether engineering services are needed for a given project. However, traditional engineering methodologies are not the emphasis of this RFP. It is a violation of State Statute to practice engineering or land surveying without a license.

10. PROJECT SELECTION

10.1 Project Identification. The State will be responsible for identifying projects, contacting landowners and securing necessary permission/cooperation agreements, selecting a contractor, writing grant applications and approving project payments.

10.2 Hazardous Materials. The State will not initiate projects where it is known that hazardous materials are present. If there is an indication of a potential of hazardous materials, then the State will do testing prior to contacting the contractor. However, there is always the possibility of unforeseen problems resulting in the stoppage of a project.

10.3 Meetings. The selected contractor may be required to meet with State personnel at the project site to conduct a site evaluation, discuss project issues and begin the negotiation process on project feasibility, conceptual design and costs for each project.

10.4 Approach Expectations. In the case of restoration activities, the agency will identify the preferred techniques. The determination made by the State may define which contractor(s) are contacted for project initiation. The State is always open to new and innovative approaches that accomplish project goals.

11. SELECTING A CONTRACTOR

The State may select a term contract holder from the Environmental Services contract home page as provided under the state's website address http://www.discoveringmontana.com/doa/gsd/procurement/TermContracts/environservices/Default.asp, taking into consideration such things as the contractor's area of expertise, requirements and location of the project, the contractor's availability and access to resources necessary to efficiently and effectively complete the project, demonstrated excellent past performance on State and public projects, identified subcontractors and total project cost.

General. Ordering agencies shall use the procedures in this section when ordering services priced at hourly rates as established by each Term Contract (TC). The applicable service categories are identified in each TC along with the contractor's price lists.

Request for Quotation (RFQ) procedures. The ordering agency must provide an RFQ, which includes the statement of work and limited, but specific evaluation criteria (*e.g.*, experience and past performance), to TC contractors that offer services that will meet the agency's needs. The RFQ may be posted to the agency's state website to expedite responses.

Statement of Work (SOWs). All SOW's shall include at a minimum a detailed description of the work to be performed, location of work, period of performance, deliverable schedule, applicable performance standards and any special requirements (e.g., security clearances, travel, special knowledge).

(1) Ordering agency may select a contractor from the appropriate service category and directly negotiate a mutually acceptable project based on a sudden and unexpected happening or unforeseen occurrence or condition, which requires immediate action. (Exigency).

(2) Ordering agency may place orders at or below the $5,000 threshold with any TC contractor that can meet the agency's needs. The ordering agency should attempt to distribute orders among all service category contractors.

(3) For orders estimated to exceed $5,000 but less than $25,000.

(i) The ordering agency shall develop a statement of work.
(ii) The ordering agency shall provide the RFQ (including the statement of work and evaluation criteria) to at least three TC contractors that offer services that will meet the agency's needs.
(iii) The ordering agency shall request that contractors submit firm-fixed prices to perform the services identified in the statement of work.

(4) For orders estimated to exceed $25,000. In addition to meeting the requirements of (3) above, the ordering agency shall:

(i) Provide the RFQ (including the statement of work and the evaluation criteria) to a minimum of six service category TC contractors (if category has less than 6, all contractors will be offered an RFQ) with a 50% replacement factor for each subsequent request for quote in the same service category.

Evaluation. The ordering agency shall evaluate all responses received using the evaluation criteria provided in the RFQ to each TC contractor. The ordering agency is responsible for considering the level of effort and the

mix of labor proposed to perform a specific task being ordered, and for determining that the total price is reasonable. The agency will place the order with the contractor that represents the best value. After award, ordering agencies will provide timely notification to unsuccessful TC contractors. If an unsuccessful TC contractor requests information on a task order award that was based on factors other than price alone, a brief explanation of the basis for the award decision shall be provided.

Minimum documentation. The ordering agency shall document:
(1) The TC contractors considered, noting the contractor from which the service was purchased.
(2) A description of the service purchased.
(3) The amount paid.
(4) The evaluation methodology used in selecting the contractor to receive the order.
(5) The rationale for making the selection.
(6) Determination of price fair and reasonableness.

Agency project task orders will be utilized to finalize the project. Only written addenda will be used for adjustments of the task orders and must be signed by both parties. All task orders must contain signatures from both parties and appropriate agency legal review as directed in their procurement policy.

The State will monitor contractor selection by using the information provided in the annual TC usage reports.

Contractor's who fail to respond to three RFQ opportunities within a one-year period between July 1st and June 30th may be removed from the qualified list of contractors.

12. CONTRACTOR RESPONSIBILITIES

12.1 Supervision and Implementation. The selected contractor for an individual project will be responsible for the supervision and implementation of the approach and will be responsible for oversight of work performed by all subcontractors. In most cases the contractor will provide and be responsible for all the necessary equipment, materials, supplies and personnel necessary for proper execution of the work. However, the State reserves the right to hire subcontractors (equipment and/or labor) if it will provide a cost savings to the State. The selected contractor will also be responsible for clean up of the sites if necessary and must have the sites inspected by the State immediately prior to completion.

12.2 On-Site Requirements. When a contractor is contacted by the State to discuss a project, the State and the contractor may visit the job site if deemed necessary by the Project Manager, to become familiar with conditions relating to the project and the labor requirements. The State will provide a detailed scope of work for the project and request the contractor supply the State with a response to project approach, cost, timeframe and any other information deemed necessary by the State to make a selection or complete a contract negotiation.
In the cases of Restoration or On-The-Ground Activities, the contractor shall adequately protect the work, adjacent property, and the public in all phases of the work. They shall be responsible for all damages or injury due to their action or neglect.

The contractor shall maintain access to all phases of the contract pending inspection by the State, the landowner, or their representative. All interim or final products funded by the contract will become the property of the State or Cooperative Purchaser upon payment for said products.

All work rejected as unsatisfactory shall be corrected prior to final inspection and acceptance. The contractor shall respond within seven calendar days after notice of observed defects has been given and shall proceed to immediately remedy these defects. Should the contractor fail to respond to the notice or not remedy the defects, the State may have the work corrected at the expense of the contractor.

12.3 Clean Up (when project tasks require). The contractor shall:

- Keep the premises free from debris and accumulation of waste;
- Clean up any oil or fuel spills;

- Keep machinery clean and free of weeds;
- Remove all construction equipment, tools and excess materials; and
- Perform finishing site preparation to limit the spread of noxious weeds before final payment by the State.

12.4 Applicable Laws. The contractor shall keep informed of, and shall comply with all applicable laws, ordinances, rules, regulations and orders of the City, County, State, Federal or public bodies having jurisdiction affecting any work to be done to provide the services required. The contractor shall provide all necessary safeguards for safety and protection, as set forth by the United States Department of Labor, Occupational Safety and Health Administration.

12.5 Cooperation. The contractor shall work closely with the States analytical consultants, (i.e. environmental laboratories and taxonomists) to develop the desired products.

12.6 Work Acceptance. The contractor is responsible for project oversight as needed. The State may also periodically provide personnel for administrative oversight from the initiation of the contract through project completion. All work will be inspected by the State or designated liaison prior to approval of any contract payments. All work rejected as unsatisfactory shall be corrected prior to final inspection and acceptance. Contractor shall respond within seven calendar days after notice of defects has been given by the State and proceed to immediately remedy all defects.

12.7 Records. The contractor will supply the State with documentation, when requested, of methods used throughout project implementation. Contractor will maintain records for themselves and all subcontractors of supplies, materials, equipment and labor hours expended.

12.8 Communication. Remoteness of project sites may necessitate that the contractor have some form of field communication such as a cellular phone. This communication is necessary to enable the State to respond to public concerns related to the project, accidents, inspections, or other project issues that require immediate feedback. In addition, the State or Cooperative Purchaser may require scheduled communication at agreed upon intervals. The communication schedule will be dependent upon the project circumstances and requirements of the contracting agency. In the case when a communication schedule is included in the Scope of Work, the schedule will commence when the contractor initiates the project.

12.9 Change Of Staffing. Since qualifications of personnel were key in determining which offerors were selected to be on this TC, a written notification of any changes in key personnel must be made to the state agency, prior to entering into negotiations to perform any specific work scope. Contractor shall replace such employee(s) at its own expense with an employee of substantially equal abilities and qualifications without additional cost to the agency. If these staffing changes cause the contractor to no longer meet the qualifications stated herein, that firm will be removed from the service area of this TC. Failure to notify the state agency of staffing changes could result in the contractor being removed from the TC listing and possible suspension from bidding on other state projects.

12.10 Collaboration. The State encourages collaboration between contractors to increase the scope of services offered. In cases where the chosen contractor is not able to provide all services needed for the project, the State will expect the chosen contractor to contact other contractors on this list to negotiate subcontracts for these services before going elsewhere. Exceptions to this strategy will be evaluated on a case-by-case basis.

12.11 Subcontractors, Project Budget and Invoicing. All subcontractors to be used in any project must be approved by the authorized entity initiating the project. Project budgets will be negotiated for each individual project contract. However, all rates, terms and conditions set forth in this term contract will be applied to individual contracts. Subcontractor is defined as anyone other than the prime contractor having substantial direct involvement in a specific project.

The State reserves the right to choose the invoicing method from the following:

- Prime contractor's billing will include the subcontractors charges and payment will be made to the prime, or
- Prime and subcontractors will bill the State separately and the State will pay each directly.

13. CONSIDERATION/PAYMENT

13.1 Payment Schedule. In consideration for the services to be provided, the State shall pay according to the negotiated agreement for each project. Hourly rates and miscellaneous charges as provided in Attachment B shall apply.

13.2 Withholding of Payment. The State may withhold payments to the Contractor if the Contractor has not performed in accordance with this contract. Such withholding cannot be greater than the additional costs to the State caused by the lack of performance.

14. CONTRACTOR WITHHOLDING

Section 15-50-206, MCA, requires the state agency or department for whom a public works construction contract over $5,000 is being performed, to withhold 1 percent of all payments and to transmit such monies to the Department of Revenue.

15. MONTANA PREVAILING WAGE REQUIREMENTS

Unless superseded by federal law, Montana law requires that contractors and subcontractors give preference to the employment of Montana residents for any public works contract in excess of $25,000 for construction or nonconstruction services in accordance with sections 18-2-401 through 18-2-432, MCA, and all administrative rules adopted pursuant thereto. Unless superseded by federal law, at least 50% of the workers of each contractor engaged in construction services must be performed by bona fide Montana residents. The Commissioner of the Montana Department of Labor and Industry has established the resident requirements in accordance with sections 18-2-403 and 18-2-409, MCA. Any and all questions concerning prevailing wage and Montana resident issues should be directed to the Montana Department of Labor and Industry.

In addition, unless superseded by federal law, all employees working on a public works contract shall be paid prevailing wage rates in accordance with sections 18-2-401 through 18-2-432, MCA, and all administrative rules adopted pursuant thereto. Montana law requires that all public works contracts, as defined in section 18-2-401, MCA, in which the total cost of the contract is in excess of $25,000, contain a provision stating for each job classification the standard prevailing wage rate, including fringe benefits, travel, per diem, and zone pay that the contractors, subcontractors, and employers shall pay during the public works contract.

Furthermore, section 18-2-406, MCA, requires that all contractors, subcontractors, and employers who are performing work or providing services under a public works contract post in a prominent and accessible site on the project staging area or work area, no later than the first day of work and continuing for the entire duration of the contract, a legible statement of all wages and fringe benefits to be paid to the employees in compliance with section 18-2-423, MCA. Section 18-2-423, MCA, requires that employees receiving an hourly wage must be paid on a weekly basis.

Each contractor, subcontractor, and employer must maintain payroll records in a manner readily capable of being certified for submission under section 18-2-423, MCA, for not less than three years after the contractor's, subcontractor's, or employer's completion of work on the public works contract.

The nature of the work performed or services provided under this contract meets the statutory definition of a "public works contract" under section 18-2-401(11)(a), MCA, and falls under the category of Heavy Construction and Nonconstruction services. The booklets containing Montana's 2003 Rates for Heavy Construction and Nonconstruction Services are attached.

The most current Montana Prevailing Wage Booklet will automatically be incorporated at time of renewal. It is the contractor's responsibility to ensure they are using the most current prevailing wages during performance of its covered work.

16. ACCESS AND RETENTION OF RECORDS

16.1 Access to Records. The Contractor agrees to provide the State, Legislative Auditor or their authorized agents access to any records necessary to determine contract compliance. (Mont. Code Ann. § 18-1-118.)

16.2 Retention Period. The Contractor agrees to create and retain records supporting the environmental services for a period of three years after either the completion date of this contract or the conclusion of any claim, litigation or exception relating to this contract taken by the State of Montana or a third party.

17. ASSIGNMENT, TRANSFER AND SUBCONTRACTING

The Contractor shall not assign, transfer or subcontract any portion of this contract without the express written consent of the State. (Mont. Code Ann. § 18-4-141.) The Contractor shall be responsible to the State for the acts and omissions of all subcontractors or agents and of persons directly or indirectly employed by such subcontractors, and for the acts and omissions of persons employed directly by the Contractor. No contractual relationships exist between any subcontractor and the State.

18. HOLD HARMLESS/INDEMNIFICATION

The Contractor agrees to protect, defend, and save the State, its elected and appointed officials, agents, and employees, while acting within the scope of their duties as such, harmless from and against all claims, demands, causes of action of any kind or character, including the cost of defense thereof, arising in favor of the Contractor's employees or third parties on account of bodily or personal injuries, death, or damage to property arising out of services performed or omissions of services or in any way resulting from the acts or omissions of the Contractor and/or its agents, employees, representatives, assigns, subcontractors, except the sole negligence of the State, under this agreement.

19. REQUIRED INSURANCE

19.1 General Requirements. The Contractor shall maintain for the duration of the contract, at its cost and expense, insurance against claims for injuries to persons or damages to property, including contractual liability, which may arise from or in connection with the performance of the work by the Contractor, agents, employees, representatives, assigns, or subcontractors. This insurance shall cover such claims as may be caused by any negligent act or omission.

19.2 Primary Insurance. The Contractor's insurance coverage shall be primary insurance as respect to the State, its officers, officials, employees, and volunteers and shall apply separately to each project or location. Any insurance or self-insurance maintained by the State, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

19.3 Specific Requirements for Commercial General Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for bodily injury, personal injury, and property damage of $1,000,000 per occurrence and $2,000,000 aggregate per year to cover such claims as may be caused by any act, omission, or negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors.

19.4 Additional Insured Status. The State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds; for liability arising out of activities performed by or on behalf of the Contractor, including the insured's general supervision of the Contractor; products and completed operations; premises owned, leased, occupied, or used.

19.5 Specific Requirements for Automobile Liability. The Contractor shall purchase and maintain coverage with split limits of $500,000 per person (personal injury), $1,000,000 per accident occurrence (personal injury), and $100,000 per accident occurrence (property damage), OR combined single limits of

$1,000,000 per occurrence to cover such claims as may be caused by any act, omission, or negligence of the contractor or its officers, agents, representatives, assigns or subcontractors.

19.6 Additional Insured Status. The State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds for automobiles leased, hired, or borrowed by the Contractor.

19.7 Specific Requirements for Professional Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for each wrongful act of $1,000,000 per occurrence and $2,000,000 aggregate per year to cover such claims as may be caused by any act, omission, negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors. Note: if "occurrence" coverage is unavailable or cost prohibitive, the Contractor may provide "claims made" coverage provided the following conditions are met: (1) the commencement date of the contract must not fall outside the effective date of insurance coverage and it will be the retroactive date for insurance coverage in future years; and (2) the claims made policy must have a three year tail for claims that are made (filed) after the cancellation or expiration date of the policy.

19.8 Deductibles and Self-Insured Retentions. Any deductible or self-insured retention must be declared to and approved by the state agency. At the request of the agency either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the State, its officers, officials, employees, or volunteers; or (2) at the expense of the Contractor, the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claims administration, and defense expenses.

19.9 Certificate of Insurance/Endorsements. A certificate of insurance from an insurer with a Best's rating of no less than A- indicating compliance with the required coverages, has been received by the State Procurement Bureau, PO Box 200135, Helena MT 59620-0135. The Contractor must notify the State immediately, of any material change in insurance coverage, such as changes in limits, coverages, change in status of policy, etc. The State reserves the right to require complete copies of insurance policies at all times.

20. COMPLIANCE WITH THE WORKERS' COMPENSATION ACT

Contractors are required to comply with the provisions of the Montana Workers' Compensation Act while performing work for the State of Montana in accordance with sections 39-71-120, 39-71-401, and 39-71-405, MCA. Proof of compliance must be in the form of workers' compensation insurance, an independent contractor's exemption, or documentation of corporate officer status. Neither the contractor nor its employees are employees of the State. This insurance/exemption must be valid for the entire term of the contract. A renewal document must be sent to the State Procurement Bureau, PO Box 200135, Helena MT 59620-0135, upon expiration.

21. COMPLIANCE WITH LAWS

The Contractor must, in performance of work under this contract, fully comply with all applicable federal, state, or local laws, rules and regulations, including the Montana Human Rights Act, the Civil Rights Act of 1964, the Age Discrimination Act of 1975, the Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973. Any subletting or subcontracting by the Contractor subjects subcontractors to the same provision. In accordance with section 49-3-207, MCA, the Contractor agrees that the hiring of persons to perform the contract will be made on the basis of merit and qualifications and there will be no discrimination based upon race, color, religion, creed, political ideas, sex, age, marital status, physical or mental disability, or national origin by the persons performing the contract.

22. INTELLECTUAL PROPERTY

All patent and other legal rights in or to inventions created in whole or in part under this contract must be available to the State for royalty-free and nonexclusive licensing. Both parties shall have a royalty-free, nonexclusive, and irrevocable right to reproduce, publish or otherwise use and authorize others to use, copyrightable property created under this contract.

23. PATENT AND COPYRIGHT PROTECTION

23.1 Third Party Claim. In the event of any claim by any third party against the State that the products furnished under this contract infringe upon or violate any patent or copyright, the State shall promptly notify Contractor. Contractor shall defend such claim, in the State's name or its own name, as appropriate, but at Contractor's expense. Contractor will indemnify the State against all costs, damages and attorney's fees that accrue as a result of such claim. If the State reasonably concludes that its interests are not being properly protected, or if principles of governmental or public law are involved, it may enter any action.

23.2 Product Subject of Claim. If any product furnished is likely to or does become the subject of a claim of infringement of a patent or copyright, then Contractor may, at its option, procure for the State the right to continue using the alleged infringing product, or modify the product so that it becomes non-infringing. If none of the above options can be accomplished, or if the use of such product by the State shall be prevented by injunction, the State will determine if the Contract has been breached.

24. CONTRACT TERMINATION

24.1 Termination for Cause. The State may, by written notice to the Contractor, terminate this contract in whole or in part at any time the Contractor fails to perform this contract.

24.2 Reduction of Funding. The State, at its sole discretion, may terminate or reduce the scope of this contract if available funding is reduced for any reason. (See Mont. Code Ann. § 18-4-313(3).)

25. STATE PERSONNEL

25.1 State Contract Manager. The State Contract Manager identified below is the State's single point of contact and will perform all contract management pursuant to section 2-17-512, MCA, on behalf of the State. Written notices, requests, complaints or any other issues regarding the contract should be directed to the State Contract Manager.

The State Contract Manager for this contract is:

Robert Oliver, Contracts Officer
Room 165 Mitchell Building
125 North Roberts
PO Box 200135
Helena MT 59620-0135
Telephone #: (406) 444-0110
Fax #: (406) 444-2529
E-mail: roliver@mt.gov

25.2 State Project Manager. Each using State agency or Cooperative Purchaser will identify a Project Manager in the project task order. The Project Manager will manage the day-to-day project activities on behalf of the State/Cooperative Purchaser.

26. CONTRACTOR PERSONNEL

26.1 Change Of Staffing. Since qualifications of personnel was key in determining which offerors were selected to be on this term contract list, a written notification to the State Procurement Bureau of any changes of key personnel must be made within two weeks of the change. These change notifications will be completed upon the departure or hiring of key personnel who are professional employees critical to awarded service areas. If these staffing changes cause the firm to no longer meet the qualifications stated herein, that firm will be removed from the service area of this term contract. Failure to notify the State Procurement Bureau of staffing changes could result in the contractor being removed from the term contract listing and possible suspension from bidding on other State projects.

26.2 Contractor Contract Manager. The Contractor Contract Manager identified below will be the single point of contact to the State Contract Manager and will assume responsibility for the coordination of all contract issues under this contract. The Contractor Contract Manager will meet with the State Contract Manager and/or others necessary to resolve any conflicts, disagreements, or other contract issues.

The Contractor Contract Manager for this contract is:

David Marshall
233 Edelweiss Drive Unit11
Bozeman, MT 59718
Telephone #: (406) 585-7420

26.3 Contractor Project Manager. The Contractor Project Manager identified below will manage the day-to-day project activities on behalf of the Contractor:

The Contractor Project Manager for this contract is:

David Marshall
233 Edelweiss Drive Unit11
Bozeman, MT 59718
Telephone #: (406) 585-7420

27. MEETINGS

The Contractor is required to meet with the State's personnel, or designated representatives, to resolve technical or contractual problems that may occur during the term of the contract or to discuss the progress made by Contractor and the State in the performance of their respective obligations, at no additional cost to the State. Meetings will occur as problems arise and will be coordinated by the State. The Contractor will be given a minimum of three full working days notice of meeting date, time, and location. Face-to-face meetings are desired. However, at the Contractor's option and expense, a conference call meeting may be substituted. Consistent failure to participate in problem resolution meetings two consecutive missed or rescheduled meetings, or to make a good faith effort to resolve problems, may result in termination of the contract.

28. CONTRACTOR PERFORMANCE ASSESSMENTS

The State may do assessments of the Contractor's performance. This contract may be terminated for one or more poor performance assessments. Contractors will have the opportunity to respond to poor performance assessments. The State will make any final decision to terminate this contract based on the assessment and any related information, the Contractor's response and the severity of any negative performance assessment. The Contractor will be notified with a justification of contract termination. Performance assessments may be considered in future solicitations.

29. TRANSITION ASSISTANCE

If this contract is not renewed at the end of this term, or is terminated prior to the completion of a project, or if the work on a project is terminated, for any reason, the Contractor must provide for a reasonable period of time after the expiration or termination of this project or contract, all reasonable transition assistance requested by the State, to allow for the expired or terminated portion of the services to continue without interruption or adverse effect, and to facilitate the orderly transfer of such services to the State or its designees. Such transition assistance will be deemed by the parties to be governed by the terms and conditions of this contract, except for those terms or conditions that do not reasonably apply to such transition assistance. The State shall pay the Contractor for any resources utilized in performing such transition assistance at the most current rates provided by the contract. If there are no established contract rates, then the rate shall be mutually agreed upon. If the State terminates a project or this contract for cause, then the State will be entitled to offset the cost of paying the Contractor for the additional resources the Contractor utilized in providing transition assistance with any damages the State may have otherwise accrued as a result of said termination.

30. CHOICE OF LAW AND VENUE

This contract is governed by the laws of Montana. The parties agree that any litigation concerning this bid, proposal or subsequent contract must be brought in the First Judicial District in and for the County of Lewis and Clark, State of Montana and each party shall pay its own costs and attorney fees. (See Mont. Code Ann. § 18-1-401.)

31. SCOPE, AMENDMENT AND INTERPRETATION

31.1 Contract. This contract consists of 12 numbered pages, any Attachments as required, RFP # SPB05-894P**,** as amended and the Contractor's RFP response as amended. In the case of dispute or ambiguity about the minimum levels of performance by the Contractor the order of precedence of document interpretation is in the same order.

31.2 Entire Agreement. These documents contain the entire agreement of the parties. Any enlargement, alteration or modification requires a written amendment signed by both parties.

32. EXECUTION

The parties through their authorized agents have executed this contract on the dates set out below.

DEPARTMENT OF ADMINISTRATION
STATE PROCUREMENT BUREAU
PO BOX 200135
HELENA MT 59620-0135

BY:_____
Penny Moon, Contracts Officer

BY:_____
(Signature)

DATE:_____

KC HARVEY INC.
233 EDELWEISS DRIVE UNIT 11
BOZEMAN MT 59718
FEDERAL ID # 20-5811880

BY:_____
(Name/Title)

BY:_____
(Signature)

DATE:_____

ATTACHMENT A
CONTRACTOR'S RESPONSE

3 SCOPE OF PROJECT

DTM Consulting, Inc. understands and will comply with terms and conditions of all subsections of Section 3 of the Environmental Services Request for Proposal (RFP SPB05894P).

3.0 BACKGROUND

DTM Consulting, Inc. (DTM) understands that the purpose of this contract is to establish a list of environmental service providers in the service areas described in section 3.5 of the RFP. DTM understands that:

- all qualified offerers will be assembled into a multiple contractor term contract for use by state agencies and other public procurement units,
- the state makes no guarantee of use by any agency-authorized access to this term contract, and
- through data conveyed by the Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, and Montana Fish, Wildlife, and Parks, it is anticipated that this contract should access approximately 2.5 million dollars or more annually.

3.1 ENGINEERING ACCESS

DTM Consulting, Inc. has a good working relationship with several engineering firms and consulting engineers. We have included in this proposal two qualified engineers from one engineering firm and one consulting engineer that best meet the anticipated needs of this contract. Qualifications for engineering personnel are included below in Section 4, Offerer Qualifications. Hourly rates for engineering personnel are included in section 1, Cost Proposal.

3.2 PROJECT SELECTION

DTM Consulting, Inc. understands and will comply with terms and conditions of all subsections of Section 3.2 of the Environmental Services Request for Proposal (RFP SPB05894P).

3.3 SELECTING A CONTRACTOR

DTM Consulting, Inc. understands and will comply with terms and conditions of all subsections of Section 3.3 of the Environmental Services Request for Proposal (RFP SPB05894P).

3.4 CONTRACTOR RESPONSIBILITIES

DTM Consulting, Inc. understands and will comply with terms and conditions of all subsections of Section 3.4 of the Environmental Services Request for Proposal (RFP SPB05894P).

Section 3.4.10 Collaboration

DTM understands that the State encourages collaboration between contractors to increase the scope of services offered. In cases where DTM is unable to provide all of the services needed for a project, DTM will negotiate with other contractors on this list before going elsewhere. DTM has collaborated with Confluence Consulting, Inc. (CCI) on TMDL and watershed planning projects and is aware that CCI is also submitting a proposal for this RFP. DTM and CCI are located in the same building and maintain a collaborative work setting facilitated by this location. DTM hopes to continue to collaborate with CCI on projects accessed through this contract when appropriate and with prior approval of the contracting state agency. DTM is also willing and prepared to collaborate with any contractors of choice of the contracting agency.

3.5 SERVICE CATEGORIES

DTM Consulting, Inc. has identified 14 of the 23 service categories for which we wish to be considered. Table 3-1 lists these service areas.

Table 3-1: Matrix of services DTM Consulting, Inc. is competing for under this RFP (Appendix C).

	SERVICES MATRIX	Yes	No
3.5.1	Water Quality Monitoring – Fixed Station and Probabilistic Design		X
3.5.2	Water Quality Monitoring – Lakes and Streams	X	
3.5.3	Water Quality Monitoring – Reference Sites	X	
3.5.4	TMDL Targets	X	
3.5.5	TMDL Source Assessment/Delineation	X	
3.5.6	TMDL Load Allocations	X	
3.5.7	Total Maximum Daily Loads	X	
3.5.8	Stakeholder Participation	X	
3.5.9	TMDL Effectiveness Monitoring	X	
3.5.10	Geographic Information Systems (GIS) Services	X	
3.5.11	Remote Sensing	X	
3.5.12	Water Quality Modeling	X	
3.5.13	Statistical Analysis	X	
3.5.14	Analytical Laboratory Services		X
3.5.14	DEQ Electronic Data/Information Technical Assistance	X	
3.5.15	Heavy Equipment Operators		X
3.5.16	Revegetation Services		X
3.5.17	Watershed Coordination		X
3.5.18	Communication/Educational Services – Information & Education		X
3.5.19	Communication/Educational Services – Contract Administration		X
3.5.20	Communication/Educational Services – Information Transfer & TMDL		X
3.5.21	Technical Editing		X
3.5.22	Land Use Planning Services	X	
3.5.23	Preparation of Technical Manuals or Circulars		X

3.5.1 Water Quality Monitoring – Fixed Station and Probabilistic Design
DTM is not applying for this service category.

3.5.2 Water Quality Monitoring – Lakes and Streams
DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.3 Water Quality Monitoring – Reference Sites
DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.4 TMDL Targets
DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.5 TMDL Source Assessment/Delineation
DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.6 TMDL Load Allocations
DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.7 Total Maximum Daily Loads

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.8 Stakeholder Participation

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.9 TMDL Effectiveness Monitoring

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.10 Geographic Information Systems (GIS) Services

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.11 Remote Sensing

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.12 Water Quality Modeling

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.13 Statistical Analysis

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.14 Analytical Laboratory Services

DTM is not applying for this service category.

3.5.15 DEQ Electronic Data/Information Technical Assistance

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.16 Heavy Equipment Operators

DTM is not applying for this service category.

3.5.17 Revegetation Services

DTM is not applying for this service category.

3.5.18 Watershed Coordination

DTM is not applying for this service category.

3.5.19 Communication/Educational Services – Information & Education

DTM is not applying for this service category.

3.5.20 Communication/Educational Services –Contract Administration

DTM is not applying for this service category.

3.5.21 Communication/Education Services – Information Transfer & TMDL Technical Editing

DTM is not applying for this service category. **3.5.22 Land Use Planning Services**

DTM is applying for this category. Please refer to section 4.2 for specific information on the DTM project team reference team, company profile, staff qualifications, and methods of providing services and quality assurance.

3.5.23 Preparation of Technical Manuals or Circulars.

DTM is not applying for this service category.

4 OFFEROR QUALIFICATIONS

DTM Consulting, Inc. understands and will comply with terms and conditions of all subsections of Section 4 of the Environmental Services Request for Proposal (RFP SPB05894P).

4.0 STATE'S RIGHT TO INVESTIGATE AND REJECT

DTM Consulting, Inc. understands and will comply with terms and conditions of all subsections of Section 4.0 of the Environmental Services Request for Proposal (RFP SPB05894P).

4.1 OFFERER INFORMATION REQUIREMENTS -ALL SERVICE CATEGORIES

In order to provide the State of Montana with the diverse range of services needed for the environmental services described in section 3.5 of the RFP, DTM Consulting, Inc. has teamed with the following firms and independent consultants: DTM has worked successfully with all of the firms and persons listed here

- Applied Geomorphology, Inc. (fluvial geomorphology, TMDL development),
- Kevin C. Harvey, Inc. (water chemistry, soil science),
- Hoitsma Ecological, Inc., (wetlands/riparian ecology),
- Portage Environmental, Inc., (engineering),
- Ms. Susan Higgins, (public outreach and education),
- Mr. Mike Compston (range and grazing management, irrigation), and
- Mr. Kevin McNew (statistical analysis).

The sections that follow describe the DTM project team in detail.

4.1.1 References

DTM Consulting, Inc. has completed over 100 natural resource and land use planning projects, digital data compilations, and custom databases and GIS applications for a diverse group of clients including federal, state, and local governments, conservation districts, watershed groups, consulting firms, and natural resource based industries. These projects range in scope from complex, multidisciplinary, natural resource investigations such as development of TMDLs and land management plans to simple technical support for conservation districts. Table 4-1 on the following pages lists 26 projects with references where DTM and teaming partners have provided services of the type stipulated in the RFP. The table also lists the service categories for which each project applies. Please refer to the subsequent sections (4.1.2, Company Profile and Experience and 4.1.4, Staff Qualifications) for additional information on company and individual qualifications.

4.1.2 Company Profile and Experience

DTM Consulting, Inc. (DTM) has assembled a team of qualified professionals for this proposal. All of the persons listed are highly qualified and have worked with DTM on numerous natural resource and land use planning projects, including the development of water quality and habitat restoration plans and TMDLs for Montana's rivers and streams. The core group of individuals consists of employees of DTM and Applied Geomorphology, Inc. (AGI). DTM and AGI are located in the same building, share facilities, and essentially operate as a single entity. Both DTM and AGI personnel can serve as project managers for the service categories in this proposal. These personnel are uniquely qualified and

played key roles in the development of a water quality and habitat restoration plan and TMDLs for the Upper Blackfoot River and phase 1 TMDL investigations for the Upper Big Hole River and Shields River watersheds. Other environmental consultants have been included in this proposal because they provide services important to anticipated needs of TMDL and watershed restoration planning projects. These individuals, with one exception, are not part of other company proposals submitted in response to this RFP.

DTM Consulting, Inc.

DTM Consulting, Inc is a Bozeman, Montana-based company specializing in developing and applying innovative approaches to solving natural resource and environmental problems. DTM has been in business since 1997 and has focused on practical, cost effective approaches that leverage our extensive experience in GIS, databases, GPS data collection, and water quality modeling, combined with well thought out field data collection plans. The result is comprehensive natural resource investigations stemming from efficient collection, analysis, management, and presentation of large, diverse data sets. DTM personnel have backgrounds in vegetation, ecology, geomorphology, watershed management, geology, hydrogeology, and education, combined with strong GIS, remote sensing, GPS mapping, database, and programming skills. Since its inception, DTM has completed numerous natural resource investigations, land management plans, data compilations, database designs/implementations spatial analyses, and custom GIS applications. DTM develops innovative GIS-based management tools that assist in the collection, analysis, and presentation of natural resource and planning data. These tools consistently save time and reduce client costs. DTM is also a business partner and authorized consultant for ESRI, Inc, the leading producer of GIS software.

Applied Geomorphology, Inc.

Applied Geomorphology, Inc. (AGI) is a woman-owned business based in Bozeman, Montana that specializes in geomorphic assessment and development of process-based strategies for stream and watershed restoration. AGI specializes in performing geomorphic assessments on a watershed scale to determine channel response to human impacts, developing TMDLs, and generating restoration strategies and project prioritizations. For example, within the Blackfoot River watershed, AGI performed a baseline using aerial imagery to delineate and characterize subreaches in terms of stream type, riparian condition, land use, and degradation. Recognizing that yearly hydrologic variation would greatly affect the impairment status of streams in the watershed, she evaluated the relationship of climate and watershed geology to trends in hydrology and sediment yield. The result was new information that allowed distinguishing human impacts from natural environmental variability. AGI’s primary focus for the past three years has been the interdisciplinary assessment of Montana watersheds, and the development of feasible strategies for long-term resource management.

Table 4-1: Matrix of DTM and teaming partner project references.

No.	CLIENT/LOCATION	CONTACT	PROJECT NAME	COMPANY NAME(S)	PROJECT TEAM PERSONNEL	DATES OF SERVICE	3.5.2 Water Quality Monitoring -Lakes and Streams	3.5.3 Water Quality Monitoring Reference Sites	3.5.4 TMDL Targets	3.5.5 TMDL Source Assessment /Delineation	3.5.6 TMDL Load Allocations	3.5.7 Total Maximum Daily Loads	3.5.8 Stakeholder Participation	3.5.9 TMDL Effectiveness Monitoring	3.5.10 Geographic Information Systems (GIS) Services	3.5.11 Remote Sensing	3.5.12 Water Quality Modeling	3.5.13 Statistical Analysis	3.5.15 DEQ Electronic Data /Information Technical Assistance	3.5.22 Land Use Planning Services	DESCRIPTION OF SERVICES RENDERED
							Project Demonstrates Experience in These Service Categories														
1	Blackfoot Challenge and Montana DEQ: Upper Blackfoot Watershed, Lewis and Clark and Powell Counties, Montana	Tina Berndt-Cohen (406) 442-4002 Dean Yashan (406) 444-5317	Blackfoot Headwaters Water Quality and Habitat Restoration Plan and TMDL	DTM / Applied Geomorphology (teamed with Confluence)	David Marshall Karin Boyd Tony Thatcher Debbie Kurtz	2001-2004	X	X	X	X	X	X		X	X	X	X	X	X	X	DTM teamed with Confluence Consulting, Inc. to complete a comprehensive Water Quality and Habitat Restoration Plan and TMDL for the 500 square mile Upper Blackfoot River watershed in western Montana. Phase 1 of this project included a baseline inventory composed of a comprehensive GIS-based watershed characterization, development of a Decision Support Model to assess metals and sediment pollution sources, and review and assessment of fisheries, vegetation, and land use for impacts from or to water quality impairments. Phase 2 of this project included a historic aerial photo assessment, field geomorphic and habitat inventory and assessments, and development of a draft TMDL and Water Quality restoration plan. Phase 3 was the development of a comprehensive watershed assessment, identification of sources and causes of water quality and habitat impairment, a prioritized list of restoration and land use modification recommendations, an implementation plan, and a future-monitoring plan. The draft document is currently being reviewed by EPA.
2	Big Hole River Watershed Committee/Big Hole River Foundation and Montana DEQ: Upper Big Hole River watershed, Beaverhead County, Montana.	Jennifer Boyer (406) 994-0251 Darrin Kron (406) 444-4765	Upper Big Hole Phase 1 TMDL Assessment	DTM / Applied Geomorphology (teamed with Confluence)	David Marshall Karin Boyd Mike Compston Tony Thatcher Debbie Kurtz	2003-2004	X	X	X	X	X	X			X	X		X	X	X	DTM and Applied Geomorphology teamed with Confluence Consulting, Inc. to conduct a Phase 1 TMDL Assessment for the 1100 square mile Upper Big Hole River watershed. Tasks included development of a comprehensive project GIS to facilitate data analysis, reconnaissance field assessment to identify sources of water quality impairment, air photo assessment and digital feature extraction of riparian vegetation cover from historic and current aerial photography, and compilation and review of existing relevant published data. This effort resulted in the identification of recent land use changes which have impacted geomorphic form, riparian vegetation, fish habitat, irrigation water use, and ultimately, the fate of arctic fluvial grayling. Recommendations of areas for priority restoration efforts were also developed.
3	Yellowstone River Conservation Districts Council: Lower Yellowstone River from Springdale, Montana to the confluence of the Yellowstone and Missouri Rivers	Warren Kellogg (406) 444-4490 Jim Robinson (406) 444-4247	Lower Yellowstone River Geomorphic Assessment	DTM / Applied Geomorphology	Karin Boyd Tony Thatcher Debbie Kurtz David Marshall	2003-2004	X	X		X			X		X	X		X	X	X	DTM teamed with Applied Geomorphology, Inc. to conduct a geomorphic assessment of 470 miles of the Lower Yellowstone River from Springdale to the confluence with the Missouri River. This project characterized existing channel form, and identified representative reaches for succeeding phases of the Yellowstone River cumulative effects investigation. This work forms the basis for assessing the geomorphic evolution of the river and determines how channel behavior is related to both natural processes and human impacts. It also provides the framework for planned studies of river hydrology and hydraulics, riparian vegetation, fish habitat, and socioeconomic

																				considerations. The project required the development of an innovative GIS based inundation model to accurately delineate the functioning river corridor and to identify areas isolated by transportation infrastructure.
4	Montana Natural Resource Damage Program: Silver Bow Creek watershed, Silver Bow and Deerlodge Counties, Montana	Carol Fox (406) 444-0209	Silver Bow Creek Watershed Restoration Plan	DTM (teamed with Confluence)	David Marshall Debbie Kurtz	2002-2004	X	X	X	X	X	X	X		X	X	X	X	X	X	DTM is currently working on a watershed restoration plan for the Silver Bow Creek watershed. This watershed has been highly impacted by historic mine and smelter waste from Butte and Anaconda and is the largest superfund site in the US. for analyzing restoration potential of fish, wildlife, vegetation, water quality, and associated recreational resources, and generating a map-based inventory of prioritized restoration opportunities. This tool will be used to guide allocation of a $120 million damage settlement reached between ARCO and the State of Montana for restoration natural resources lost due to mining impacts.
5	Park Conservation District: Shields River watershed, Park, Gallatin, and Meagher Counties, Montana	Amy Miller (406) 222-2899	Shields River Watershed Phase 1 TMDL Assessment	DTM / Applied Geomorphology (teamed with Confluence)	Karin Boyd David Marshall Debbie Kurtz Tony Thatcher	2003-ongoing	X	X	X	X	X	X			X	X	X	X	X	X	DTM and AGI are currently teamed with Confluence Consulting, Inc. to develop a Phase 1 TMDL Assessment for the Shields River watershed. Tasks include development of a project GIS to facilitate data analysis, statistical summarization of existing data on soils, geology, land ownership, land use, hydrology, and climate, field reconnaissance to identify potential sources of impairment, and development of a field data collection strategy for summer 2004 field efforts.
6	Big Hole River Watershed Committee/Big Hole River Foundation: Upper Big Hole River watershed, Beaverhead County, Montana.	Jennifer Boyer (406) 994-0251	Upper Big Hole River Watershed Water Storage Scoping Project and Water Management Review	Portage / DTM	Ray Schwaller Alan Dreesbach David Marshall Jon Rieck	2004-ongoing	X	X					X		X	X	X	X		X	DTM is teamed with Portage Environmental, Inc. to develop a Water Storage Scoping and Water Management Review for the Upper Big Hole River watershed. The objectives are to identify potential reservoir sites as well as non-storage water management alternatives that can benefit the imperiled fluvial arctic grayling in the Big Hole River and tributaries. The project involves development of a GIS-based screening model for identification of potential storage sites as well as examination of aerial photography and satellite imagery to identify non-storage alternatives such as constructed wetlands, irrigation efficiency, land use modification, and water leasing. being actively sought to identify incentives to bring about these water conservation measures.

Table 4-1: Matrix of DTM and teaming partner project references.

No.	CLIENT / LOCATION	CONTACT	PROJECT NAME	COMPANY NAME(S)	PROJECT TEAM PERSONNEL	DATE OF SERVICES	3.5.2 Water Quality Monitoring -Lakes and Streams	3.5.3 Water Quality Monitoring - Reference Sites	3.5.4 TMDL Targets	3.5.5 TMDL Source Assessment /Delineation	3.5.6 TMDL Load Allocations	3.5.7 Total Maximum Daily Loads	3.5.8 Stakeholder Participation	3.5.9 TMDL Effectiveness Monitoring	3.5.10 Geographic Information Systems (GIS) Services	3.5.11 Remote Sensing	3.5.12 Water Quality Modeling	3.5.13 Statistical Analysis	3.5.15 DEQ Electronic Data /Information Technical Assistance	3.5.22 Land Use Planning Services	DESCRIPTION OF SERVICES RENDERED
							Project Demonstrates Experience in These Service Categories														
7	Missouri River Conservation Districts Council: Missouri River from headwaters to ontana/North Dakota state line.	Gayla Wortman (406) 468-2756	Missouri River Data Gaps Analysis	DTM / Applied Geomorphology	Tony Thatcher Karin Boyd Debbie Kurtz	2003-2004									X			X		X	As a first step in the development of a comprehensive management plan for the Missouri River, the Missouri River Conservation Districts Council contracted with DTM to provide an inventory, compilation, analysis and assessment of available data sources. The project involved an extensive literature research supported by the development of an interactive, user friendly reference database application. The database, combined with a comprehensive GIS, serves a baseline for future planning and management efforts.

8	Sweetgrass and Hill County Conservation Districts in Collaboration with Montana Department of Natural Resources and Conservation: Boulder River and Milk River watersheds, Montana	Warren Kellogg (406) 444-4490	Boulder River and Milk River GIS Data Compilation and Management Maps	DTM	Tony Thatcher Debbie Kurtz	2004									X				X	X	DTM was contracted by local conservation districts to compile available GIS data and generate a series of large-scale map tiles to assist in management efforts within the watersheds. Tasks included compiling physical feature inventory information, assessing availability of and compiling historic imagery, and transferring the compiled information to local GIS users.
9	Upper Shields Watershed Association and Park County Conservation District: Shields River watershed, Park, Gallatin, and Meagher Counties, Montana	Amy Miller (406) 222-2899	Upper Shields River Watershed Stream Assessment	DTM (subcontractor to Interfluve, Inc.)	Tony Thatcher David Marshall	2001-2002	X	X							X			X	X	X	This project serves as a watershed level inventory and evaluation of over 40 miles of stream channel and riparian corridor. The goals included a general geomorphic and ecological characterization and classification of the river and floodplain to help identify and prioritize potential rehabilitation opportunities. The report is supported by an integrated GIS application containing customized tools and interfaces. These tools allow the user to visually and spatially examine watershed attributes at varying scales. Mapping was the result of a detailed walkthrough and photo interpretation. All data layers and the GIS application were provided on a stand-alone CD that accompanied the report.
10	Cascade Earth Sciences: Services provided from DTM's offices in Bozeman, Montana. Project sites located in Idaho and California.	Dan Bruner (208) 233-6565	Water Sentinel: Web-Based Water Quality Tracking and Reporting Database	DTM	Tony Thatcher	2002-ongoing									X			X	X		Developed four custom database applications for data management, analysis, and reporting of water quantity, water quality, and soil monitoring results from ongoing wastewater disposal operations. These applications are deployed on a web site for use by the clients and for one application, Idaho DEQ.
11	Metropolitan Milwaukee Sewerage District: Milwaukee, Wisconsin	Dave Fowler (414) 277-6368	Sediment Transport Study of the Menomonee River Watershed	DTM (subcontractor to Interfluve, Inc.)	Tony Thatcher Karin Boyd David Marshall	2000-2001	X	X							X		X	X	X	X	Provided a planning tool for flood management, stabilization, and rehabilitation activities within the Menomonee River Watershed. Incorporated approximately 63 miles of field data data into an ArcView based customized GIS application to be used as a planning tool for district water managers and provide documentation and on-site training in its use. This information was blended into an ArcView user interface with numerous customized tools empowering district mangers to quickly visualize any selected portion of the watershed and determine courses of action pertaining to river modification projects.
12	United States Geological Survey, Northern Rocky Mountain Science Center: Bozeman, Montana	Doug Ouren doug_ouren @usgs.gov	NRMSC GPS Animal Collar Tracking GIS and Database	DTM	Tony Thatcher	2003-2004									X	X		X	X		The Animal Collar Tracking GIS and Database application was developed and implemented for the USGS to facilitate the storage, retrieval and analysis of GPS animal tracking collar information. This project focused on integrating time-consuming and error-prone data management and analysis tasks into a unified application based on ESRI ArcGIS and Microsoft Access. Project specifications for import, processing and analysis of raw data were translated into GIS and database routines utilizing a series of custom programs and user interfaces. The resulting application standardizes and streamlines the data management stream, including import of raw data, reprojection to the required coordinate system, processing of input data to reflect analysis needs, attribution of Access database records with point specific spatial data from the GIS, and export of required data records to statistical analysis programs.
13	Womack and Associates, Inc. Billings, MT: Project site, Yellowstone River in Yellowstone County	Ray Womack (406) 656-5398	Impact Assessment BNSF Bank Stabilization Project Lower Yellowstone River, Montana	Karin Boyd (sub to BNSF Railroad / Womack and Associates)	Karin Boyd	2001															Assessed the geomorphic impacts of revetments on 5 reaches of the Yellowstone River downstream of Billings. Project involved a GIS/air photo analysis of historic channel changes, a field inventory and assessment of revetment performance and impacts, and the development of recommendations for improved armor performance and minimization of geomorphic impacts.

14	Anderson Consulting Engineers, Inc. Fort Collins, CO: Project site near Lander, Wyoming.	Jay Schug (970) 226-0120	Popo Agie Watershed Geomorphic Assessment	Karin Boyd (sub to Wyoming Water Development Commission/ Anderson Consulting Engineers, Inc.)	Karin Boyd	2001	✕		✕	✕	✕										Performed a geomorphic assessment of approximately 150 miles of channel in the Popo Agie Watershed near Lander, Wyoming as part of a larger water management study for the Wyoming Water Development Commission. Included field mapping, channel classification (Rosgen Levels 1-3), assessment of channel stability, and identification of subreaches where fluvial conditions were impaired. Results of the assessment were utilized to develop alternatives that would optimize geomorphic function within established site constraints.

Table 4-1: Matrix of DTM and teaming partner project references.

No.	CLIENT / LOCATION	CONTACT	PROJECT NAME	CONTACT NAME(S)	PROJECT TEAM PERSONNEL	DATE OF SERVICES	3.5.2 Water Quality Monitoring -Lakes and Streams	3.5.3 Water Quality Monitoring - Reference Sites	3.5.4 TMDL Targets	3.5.5 TMDL Source Assessment /Delineation	3.5.6 TMDL Load Allocations	3.5.7 Total Maximum Daily Loads	3.5.8 Stakeholder Participation	3.5.9 TMDL Effectiveness Monitoring	3.5.10 Geographic Information Systems (GIS) Services	3.5.11 Remote Sensing	3.5.12 Water Quality Modeling	3.5.13 Statistical Analysis	3.5.15 DEQ Electronic Data /Information Technical Assistance	3.5.22 Land Use Planning Services	DESCRIPTION OF SERVICES RENDERED
							Project Demonstrates Experience in These Service Categories														
15	Bureau of Reclamation, Pacific Northwest Division, Boise, Idaho: Project site along Snake River near American Falls, Idaho	Ray Leight (208) 334-9562	American Falls Access Management Plan	DTM	Tony Thatcher David Marshall	1999-2000							✕		✕	✕		✕	✕	✕	As part of the Bureau of Reclamation's re-licensing of American Falls Dam, DTM Consulting conducted a comprehensive Access Management Plan for lands surrounding American Falls Reservoir and along the Snake River downstream from the dam. Tasks included a field GPS survey of all existing roads, trails, and access points, conducting public outreach among user groups (tribal and recreational), researching historical use, compiling all data into a GIS, conducting statistical and spatial analyses, and writing a comprehensive access management plan.
16	Whatcom County Public Works Department, Bellingham, WA	Paula Cooper (360) 676-6730	Feasibility Assessment of Flood Hazard Mitigation Alternatives, Canyon Creek Alluvial Fan	Karin Boyd (with previous employer)	Karin Boyd	2000	✕	✕		✕			✕							✕	Performed a geomorphic evaluation of a flood-prone alluvial fan and developed land management alternatives. Included assessment of the geomorphic evolution of the fan, and estimation of sediment transport capacities on the fan surface. Management alternatives were assessed in terms of their cost feasibility and the provision of long-term flood protection. Responsibilities included fieldwork, geomorphic assessment, feasibility assessment, presentation of results to county personnel, and preparation of materials and presentation of results for public meetings.
17	Whatcom County Public Works Department, Bellingham, WA	Paula Cooper (360) 676-6730	Migration Corridor Delineation, Nooksack River, WA.	Karin Boyd (with previous employer)	Karin Boyd	2000	✕	✕		✕											Performed a geomorphic evaluation of approximately 12 miles of the braided Nooksack River system to assess the implications of a proposed migration corridor with respect to geomorphic processes. Multiple corridors were developed based on geomorphic principles, and those corridors were compared to the preliminary corridor developed by the Whatcom County. Anticipated rates of corridor impingement were then determined, such that the long-term impact of corridor construction on fisheries were then estimated.

18	US Fish and Wildlife Service, Reno, NV	Dale Miller (406) 522-0072	Truckee River Recovery Implementation Team Support	DTM (subcontractor to Interfluve, Inc.)	David Marshall Karin Boyd	2000-2001								✕		✕			✕	✕	Provided GIS and public communications (Internet) support for an interagency effort to create a recovery plan for Lahontan Cutthroat trout in the Truckee River Watershed, California and Nevada.
19	CMS Oil and Gas Company, Devon Energy Corporation, Yates Petroleum Corporation, Prima Oil and Gas Company, Petroleum Development Corporation, Barrett Resources Corporation, First Sourcenergy Wyoming, Inc., and VHJ Energy, Inc.: Project site in Campbell and Sheridan Counties, Wyoming.	Scott Hedlund (307) 237-0864	Hydrological Assessment & Water Management Study for Coalbed Methane Operations: LX Bar and Spotted Horse Creek Watersheds, Wyoming.	DTM	David Marshall Karin Boyd Kevin Harvey	2000	✕	✕							✕	✕	✕	✕		✕	This watershed scale hydrological assessment and water management study was related to the discharge of coalbed methane produced water. It provided a baseline surface water quantity and fluvial geomorphologic assessment as well as a detailed spatial analysis and water balance model within a comprehensive GIS. Included research and compilation of all surface and ground water, and water rights data, estimation of flood frequencies based on regional regression equations, field-determination of bankfull discharge, comparison of anticipated CBM flows to natural runoff, and identifying stream segments most prone to destabilization upon flow augmentations.
20	Gallatin Valley Land Trust: Gallatin County, Montana	Debbie Deagan (406) 587-8404	Gallatin County Land Value Assessment	DTM	David Marshall Tony Thatcher	2001									✕	✕		✕		✕	Created a spatial database and accompanying maps of agricultural, wildlife, and water resource attributes for Gallatin County. Developed a GIS-based model to assess and rank land based on water, soil, and wildlife resources. GVLT currently uses this information to assess conservation easements and direct landowner outreach activities.
21	Madison County, Montana, Planning Department: Madison County, Montana	Doris Fischer (406) 843-5250	Madison County Buildout Analysis	DTM	David Marshall Tony Thatcher	2001									✕	✕		✕		✕	Conducted a GIS based build-out analysis for Madison County. Used existing data sources to evaluate development history of the county, identify water resources and their potential impact from development, conducted statistical analysis of historic growth trends, and projected growth trends to 2010.
22	Montana Dept. of Natural Resources and Conservation, Helena, Montana: Services rendered from DTM's offices in Bozeman, Montana	Jane Horton (406) 444-5926	Water Rights Mapper GIS Application	DTM	Tony Thatcher	1999-2001									✕				✕		The Water Rights Mapper was created for the Water Resources Division of Montana's Department of Natural Resources and Conservation (DNRC) to streamline the task of mapping claimed and examined water rights throughout the State of Montana. This customized ArcView application steps the user through a series of tasks to create digital representations of areas of use, ditch locations and points of diversion. The application has been distributed to regional DNRC offices throughout Montana.
23	Montana Dept. of Natural Resources and Conservation, Bozeman, Montana: Project site, Gallatin County, Montana and Yellowstone National Park	Scott Compton (406) 586-3136	Yellowstone Controlled Groundwater GIS and Database	DTM	Tony Thatcher	1999									✕			✕	✕		Compiled and analyzed groundwater data for the Yellowstone Controlled Groundwater region in Montana into a Microsoft Access Database. Compiled GIS base data for the region within an ArcView GIS and created custom tools for linking to the Access database, querying, and displaying all water resource information.

Table 4-1: Matrix of DTM and teaming partner project references.

No.	CLIENT / LOCATION	CONTACT	PROJECT NAME	COMPANY NAME(S)	PROJECT TEAM PERSONNEL	DATE OF SERVICES	3.5.2 Water Quality Monitoring -Lakes and Streams	3.5.3 Water Quality Monitoring - Reference Sites	3.5.4 TMDL Targets	3.5.5 TMDL Source Assessment /Delineation	3.5.6 TMDL Load Allocations	3.5.7 Total Maximum Daily Loads	3.5.8 Stakeholder Participation	3.5.9 TMDL Effectiveness Monitoring	3.5.10 Geographic Information Systems (GIS) Services	3.5.11 Remote Sensing	3.5.12 Water Quality Modeling	3.5.13 Statistical Analysis	3.5.15 DEQ Electronic Data /Information Technical Assistance	3.5.22 Land Use Planning Services	DESCRIPTION OF SERVICES RENDERED
							Project Demonstrates Experience in These Service Categories														
24	Gallatin County GIS: Bozeman, Montana	Allen Armstrong (406) 582-3049	GIS Technical Support, miscellaneous projects	DTM	Tony Thatcher David Marshall Debbie Kurtz	2000-2003									X				X	X	1. Developed software to automate the production of over 300 maps depicting roads, sections, and structure locations overlain on an aerial photo base. Maps are currently used by the Gallatin County Planning Dept., Gallatin County Dept. of Emergency Services, and the public. 2. Created zoning maps based on updated parcel information. 3. Developed a series of maps depicting historic growth trends in the Gallatin Valley. 4. Mapped structures and roads in Gallatin and Madison Counties with precision GPS.
25	City of Bozeman GIS: Bozeman, Montana	Jon Henderson (406) 582-2250	GIS technical support, Bozeman Ridgeline and Viewshed Analysis	DTM	Tony Thatcher David Marshall Debbie Kurtz	2003									X		X			X	1. Conducted a view shed analysis of ridgelines in the Bozeman area. Developed a GIS-based model to determine spatial parameters that define ridgelines and developed data sets depicting viewshed areas potentially impacted by development. 2. Developed methodology for rectifying city parcels data to three different base maps based on satellite imagery, PLSS, and GCDB respectively. Updated parcels data to coincide with these base data. 3. Conducted an assessment of existing survey control in the Bozeman Area and outlined feasibility and requirements to proceed for future development of a comprehensive survey control network.
26	City of Bozeman Planning Department: Bozeman, Montana	Chris Saunders (406) 582-2360	Bozeman City Planning Permit Tracking Database	DTM	Tony Thatcher	2001-2002									X			X	X	X	Developed and implemented a customized building permit tracking database for Bozeman City personnel. Multiple users are able to access the database, enter new permit data, edit existing permit data, conduct statistical analysis, track progress, and create reports

Independent Contractors

Several natural resource consultants are included in this proposal. These personnel are highly qualified in their respective fields, have successfully collaborated with DTM on other projects, and with one exception, reside in the state of Montana. These individuals provide expertise in water and soil chemistry, NPDES permitting/mixing zone analysis, wetlands/riparian ecology, groundwater hydrology, public outreach, range management, grazing, and statistical analysis. Table 4-2 below summarizes the qualifications, work experience, education, and expertise for the proposed project team. Section 4.1.4 below presents a detailed bio sketch of each of the personnel listed below. The section labeled **Error! Reference source not found.** contains two-page resumes for all proposed personnel on this contract.

Engineering Support

DTM Consulting, Inc. has established a good working relationship with the Helena, Montana office of Portage Environmental, Inc. for engineering services. Portage is a well-established environmental consulting firm based in Idaho Falls, Idaho. The Portage team brings considerable expertise in civil, geotechnical, and environmental engineering to any potential projects under this contract. Projects completed by Portage engineers include stream restoration design, dam inspections and rehabilitation, AML restoration design, waste containment systems and impoundment designs, geotechnical investigations and slope stability analyses, mine reclamation and closure, EIS and EA management, and environmental permitting.

Table 4-2: Summary of personnel qualifications in this proprosal.

NAME OF FIRM	EXPERTISE	PERSONNEL
DTM Consulting, Inc. Contact: David Marshall 211 N. Grand Ave., Suite J Bozeman, MT 59715 (406) 585-5322 www.dtmgis.com Years in business: 7	• Watershed Assessment and Planning • TMDL Development • GIS Mapping, Analysis • Remote Sensing • Database Design • Water quality modeling (SWAT, HSPF, QUAL2E, • Earth Sciences • GIS-based risk assessment modeling • Digital Data Management • Custom GIS Applications • Cartographic Presentation	David Marshall, MS, PG *Natural resource/watershed planning* *GIS/Remote Sensing* *20 years experience* Tony Thatcher, MS *GIS/Database* *Remote Sensing* *Programming* *14 years experience* Debbie Kurtz, MS *Vegetation/GIS* *5 years experience* Jon Rieck, BS *GIS/Biology* *3 years experience*
Applied Geomorphology, Inc. Contact: Karin Boyd 211 N. Grand Ave., Suite C. Bozeman, MT 59715 (406) 587-6352 Years in business: 4	• Fluvial Geomorphology • Channel Stability Analysis • Sediment Transport • Human Impacts Assessment • Channel Restoration Design • Field Data Collection and Analysis • Rosgen Channel Classification • TMDL Development	Karin Boyd, MS, PG *Fluvial Geomorphology* *TMDL development* *15 years experience*
Kevin C Harvey, Inc Contact: Kevin Harvey 233 Edelweiss Drive, Unit 11 Bozeman, MT 59718 (406) 585-7402 Years in business: 12	• Environmental Soil Science • Land Reclamation • Surface Water Resources • NPDES Permitting • Waste Water Land Application • Water Quality Modeling (CORMIX, Qual2E)	Kevin Harvey, MS *Soil Science Water Chemistry Water Quality Modeling 23 years experience*

Hoitsma Ecological, Inc. Contact: Todd Hoitsma 321 E. Main, Suite 400 Bozeman, MT 59715 (406) 581-1972 Years in business: 3	• Riparian Assessment/Inventories • Vegetation Monitoring • Wetland Delineation and Design • Revegetation Design • NEPA/MEPA Documentation	Todd Hoitsma, MS *Vegetation* *Wetlands/Riparian Ecology* *Stream Restoration* *15 years experience*
Portage Environmental, Inc, Contact: Ray Schwaller 2024 9th Ave. Helena, MT 59601 (406) 457-0027 www.portageenv.com Years in business: 20	• Human health and environmental risk assessment • Water quality assessment Reclamation/remediation • Civil, geotechnical, and environmental Engineering • Stream restoration • Permitting	Ray Schwaller, MS, PE *Civil, engineering* *Stream restoration* *Dam safety* *14 years experience* Alan Dreesbach, BS, PE *Environmental engineering* *Permitting 14 years experience*
Ms. Susan Higgins Montana Water Center 101 Huffman Hall, MSU Bozeman, MT 59717 (406) 994-1772 Years in business: 11	• Stakeholder participation • Grant writing/fundraising • Technical writing • Water resource education	Susan Higgins, MS *Public outreach* *Water resources education* *22 years experience*
Mr. Mike Compston Contact: Mike Compston P.O. Box 108 Wellington, NV 89444 (775) 465-2279 Years in business: 4	• Range management • Irrigation efficiency • Grazing management • Wetlands management • Agronomy • Animal Science	Mike Compston, BS *Range Management* *Agronomy* *Irrigation efficiency* *32 years experience*
Mr. Kevin McNew Contact: Kevin McNew 9 Hodgeman Canyon Bozeman, MT 59718 (406) 580-1274 Years in business: 2	• Multivariate analysis • Trend analysis • Regression analysis • Statistical study designs • Statistical reporting and graphical representation	Kevin McNew, PhD *Statistics* *GIS application Development* *Ag Economics* *10 years experience*
Portage Environmental, Inc Contact: Ray Schwaller 2024 9th Ave. Helena, MT 59601 (406) 457-0027 www.portageenv.com Years in business: 20	• Reclamation/remediation • Civil, geotechnical, and environmental Engineering • Stream restoration • Permitting	Ray Schwaller, MS, PE *Civil, engineering* *Stream restoration* *Dam safety* *14 years experience* Alan Dreesbach, BS, PE *Environmental engineering* *Permitting* *14 years experience*

4.1.3 Method of Providing Services and Quality Assurance

DTM and its teaming partners provide environmental services with the objective of maintaining the highest quality possible in a cost effective manner. Through our experience in TMDL planning efforts we have learned to strike a careful balance between these two. Often, limited data for water quality and habitat restoration planning are available and must be extrapolated across a wide area. Short time frames and limited funding further constrain the projects. These challenges required us to develop a project approach that ensures quality of the final product. This approach focuses on:

- effective project management,
- clear communications with clients and agency partners,
- careful, collaborative planning of field data acquisition and modeling efforts,
- adherence to data quality objectives (DQO) procedures recommended by EPA[1],
- robust oversight and assessment throughout the project,

- data validation,
- collaborative review of data, analysis results, and resulting conclusions, and
- internal and external peer review.

An example of how the DTM team provides environmental services under challenging time frames and budgets is project number one in Table 4-1, the Blackfoot Headwaters Water Quality and Habitat Restoration Plan and TMDL. DTM and AGI both served as teaming partners to Confluence Consulting, Inc. on this project. Work on this project proceeded in phases based on yearly 319 budget cycles and availability of DEQ personnel. Phase 1 began in November, 2001 and consisted of compilation of all existing data into a project GIS, assessing these data for relevance to 303(d) listed impairments to water quality, development of a watershed characterization report, development and application of a GIS-based model to assess sediment and metals pollution sources, review and assessment of fisheries, habitat, water quality, and land use information to identify sources of impairment. Phase 1 was completed in a three-month time frame with a limited budget.

Phase 2 of this project commenced in June 2002, and consisted of a recent and historic aerial photo assessment, field geomorphic and habitat inventory and assessments, and development of a draft TMDL and Water Quality and Habitat Restoration Plan. The field assessment was conducted with the assistance of approximately 24 volunteers from federal and state regulatory agencies, universities, consulting firms, and watershed groups and required extensive planning, assessment methodology training, and coordination of these individuals. Again, short time frames and budgetary constraints required the DTM team to work with a high level of efficiency. The project was completed in December 2002.

The final phase of this project commenced in September 2003 and was completed in March 2004. This phase consisted of finalizing the Upper Blackfoot Water Quality and Habitat Restoration Plan and Sediment TMDL, utilizing all information generated in the previous phases. DTM and AGI served supporting roles to Confluence Consulting, Inc. for this final phase. The final TMDL is currently undergoing EPA review.

The DTM team conducted a post mortem review on the entire Upper Blackfoot project to identify areas for improvement. Recommendations stemming from this review are being incorporated into early stage TMDL development efforts for the Middle Blackfoot and Nevada Creek TMDL planning areas.

4.1.4 Staff Qualifications

Table 4-3 below lists the qualifications of personnel that may work on this contract. This includes degrees, total years of professional experience, years of experience in service area project types, professional registration, specialty training, percent of time available to work on this contract, fields of competence, and a list of which service areas each persons experience applies to. Engineering support personnel available to DTM for this contract are listed at the bottom of the table. Professional rates for each of these staff members are found in Section 5, Cost Proposal

	Credentials						Fields of Competence											RFP Service Areas												
Personnel	Degree	Total Years Experience	Years Experience on Service Area Project Types	Professional Registration	Specialty Training	% of Time Available to Work on This Contract	Stream Ecology	Riparian/Wetland Ecology	Agriculture	Water Chemistry	Geology	Geochemistry	Soil Science	Fluvial Geomorphology	Surface Water Hydrology	Groundwater Hydrology	GIS/Information Technology	Remote Sensing	3.5.2 Water Quality Monitoring - Lakes and Streams	3.5.3 Water Quality Monitoring - Reference Sites	3.5.4 TMDL Targets	3.4.5 TMDL Source Assessment and Delineation	3.5.6 TMDL Load Allocations	3.5.7 Total Maximum Daily Loads	3.5.8 Stakeholder Participation	3.5.9 TMDL Effectiveness Monitoring	3.5.10 Geographic Information Systems (GIS) Services	3.5.11 Remote Sensing	3.5.12 Water Quality Modeling	3.5.13 Statistical Analysis	3.5.15 DEQ Electronic Data/Information Technical Assistance
David Marshall	M.S.	20	15	P.G.	SWAT, HSPF	60%				X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Karin Boyd	M.S.	16	15	P.G.		50%	X				X		X	X	X				X	X		X		X	X	X	X			X	
Tony Thatcher	M.S.	14	10			30%					X		X				X	X	X	X					X		X	X		X	X
Debbie Kurtz	M.S.	5	5			50%		X									X	X	X	X							X	X			X
Jon Rieck	B.S.	3	3			60%											X	X									X	X			X
Kevin Harvey	M.S.	23	15	CPPSc		10%				X		X	X		X	X			X	X	X	X	X	X		X	X		X	X	
Todd Hoitsma	M.S.	15	12		Wetland construction	40%	X	X		X									X	X		X	X			X					
Susan Higgins	M.S.	25	20		Grant writing	25%																			X						
Mike Compston	B.S.	32	20			10%		X	X				X								X	X			X						
Kevin McNew	PhD	10	4			10%			X								X													X	X
Engineering Support																															
Ray Schwaller	M.S.	14	14	P.E.		20%																									
Alan Dreesback	B.S.	13	13			20%																									

David Marshall, PG (DTM Consulting, Inc.)

David Marshall is a registered professional geologist (Idaho No. 837) with 20 years experience collecting, analyzing, and presenting natural resource information for clients throughout the US. David provides natural resource management and watershed restoration planning expertise to government agencies, watershed groups, municipalities, natural resource industries, and businesses. David's strengths lie in his background in natural sciences and application of innovative data management techniques to investigating natural resource issues. He has significant expertise managing multidisciplinary collaborative efforts to characterize and solve environmental problems including the design, construction, and implementation of GIS based decision support models.

Mr. Marshall was a principal investigator for recently completed water quality and habitat restoration and TMDL development projects on both the Upper Blackfoot and Big Hole rivers. He is also the principal architect of an ongoing effort to design a GIS-based decision support model for restoration activities in the Silver Bow Creek watershed at Butte, Montana, the largest superfund site in the U.S. Other watershed scale investigations that David has played a role in include the Shields River Phase 1 TMDL, Upper Big Hole River Watershed Water Storage Scoping Project and Water Management Review, and the Hydrological Assessment & Water Management Study for Coalbed Methane Operations: LX Bar and Spotted Horse Creek Watersheds, Wyoming.

Karin Boyd, PG (Applied Geomorphology, Inc.)

Karin Boyd is a registered professional geologist (Wyoming No. PG-594), with 15 years of experience in applied fluvial geomorphology. She is the principal owner of ***Applied Geomorphology, Inc. (AGI),*** a Bozeman, Montana-based firm that specializes in geomorphic assessment and development of process-based strategies for stream and watershed restoration. Ms. Boyd's professional experience stems from numerous projects in which she has performed stream stability evaluations, geomorphic evolution assessments, channel classification, channel design, and restoration planning. In 2003, Ms. Boyd was requested to serve on the Technical Advisory Committee for the Yellowstone River Conservation District Council, and in that capacity has assisted the YRCDC in developing and launching a Cumulative Effects Investigation of almost 500 miles of Yellowstone River corridor. In support of that effort, she has recently completed a geomorphic assessment/channel classification of the corridor from Springdale to the Missouri River, which will provide a framework for future study efforts. Ms. Boyd has performed geomorphic assessments on a watershed scale to determine channel response to human impacts, develop sediment TMDLs, and generate restoration strategies and project prioritizations. She has performed baseline assessments of the Blackfoot and Upper Big Hole watersheds using aerial imagery to delineate and characterize subreaches in terms of stream type, riparian condition, land use, and degradation. Within the Blackfoot River watershed, she evaluated the relationship of climate and watershed geology to trends in hydrology and sediment yield in an effort to distinguish human impacts from natural environmental variability. Currently, her primary professional interest is the interdisciplinary assessment of Montana watersheds, and the development of feasible strategies for long-term resource management.

Tony Thatcher (DTM Consulting, Inc.)

Tony Thatcher has an M.S. in Geography with 14 years experience in collecting, analyzing and presenting spatial and non-spatial data using Geographic Information Systems (GIS), remote sensing, CAD, GPS, and various other digital techniques. Mr. Thatcher has participated in numerous environmental monitoring and evaluation projects throughout North America and is a co-founder and Principal of DTM Consulting. Mr. Thatcher's strengths reside in his ability to integrate diverse technologies, data, and software to create innovative solutions to meet client needs. He has extensive experience in developing custom mapping techniques, modeling systems, tools, and user interfaces for data management and presentation in both GIS and database environments. These custom tools often result in significant cost savings, improved data analysis, and quality products for clients. Mr. Thatcher has recently managed and completed several environmental inventory and analysis related projects, including compiling and analyzing geomorphic and environmental data for the over 500 miles of the Lower Yellowstone River, creating a wildlife tracking and analysis system for the United States Geologic Survey and performing a preliminary data collection and assessment of available Missouri River data for the Missouri River Conservation Districts Consortium. He coordinated the US side of a USGS-funded project creating seamless framework datasets across the US/Canada border. His current project work includes creating a GIS-based watershed-scale landscape

characterization tool and developing an on-line database application for storing and reporting applied wastewater information.

Debbie Kurtz (DTM Consulting, Inc.)

Debbie Kurtz has a M.S. in Earth Sciences with 6 years experience in collecting, analyzing and presenting spatial and non-spatial data using Geographic Information Systems (GIS), Remote Sensing, and GPS. Ms. Kurtz has worked on a number of watershed-scale projects in Montana involving data collection and/or compilation, data analysis and map production. She has participated in various research projects for Conservation District Offices, the Forest Service, National Park Service, Montana State University, the University of Oklahoma, nonprofit organizations, and private individuals both leading and assisting with various stages of the projects. She is experienced in project design, data collection, analysis, project reporting and presentation. Her strengths lie in her abilities for observation and analysis, both in the field and at a computer. Ms. Kurtz's experiences span the fields of natural resource management and ecology including watershed analysis and mapping, vegetation sampling, mapping and modeling; fisheries modeling and sampling; stream quality analysis; and wildlife corridor mapping and modeling.

Jon Rieck (DTM Consulting, Inc.)

Jon Rieck has a B.S. in Geography with 3 years experience in collecting, analyzing and presenting spatial and non-spatial data using Geographic Information Systems (GIS), Remote Sensing, GPS, and various other digital techniques. Jon has compiled large datasets for use in analysis of wildlife/human conflict areas and collected data to show areas of potential groundwater contamination. Jon is currently working on development of a GIS-based model to screen potential reservoir storage sites in the Upper Big Hole River watershed. Screening criteria include hydrologic, geologic, soils, and topographic parameters. Results are used to help determine relative feasibility and costs of potential storage sites to augment low flows in the Big Hole River for fluvial arctic grayling.

Kevin Harvey, CPPSc (Kevin C. Harvey, Inc.)

Kevin Harvey is a board-certified professional soil scientist with 23 years experience providing environmental consulting services to the private and public sector throughout the U.S., Canada, Mexico and Europe. He has held senior level management positions in the consulting industry and has directed and managed professional staff and contractors on multimillion dollar environmental management, permitting and remediation projects. Kevin's technical strengths are in soil science, land reclamation, surface water resources, and general environmental problem solving. He has particular expertise in the management of surface water resources and NPDES permitting for the mining and oil and gas industries. He has extensive international experience including establishing and managing the European operation for a major international environmental engineering and consulting firm. Recently, Kevin has been responsible for researching, developing, demonstrating and operating managed irrigation systems for the beneficial use of groundwater produced from coalbed natural gas development. Kevin holds a B.S. in Resource Management from the University of Montana and a M.S. in Land Rehabilitation with an emphasis in soil science from Montana State University. He is currently pursuing a Ph.D. in Soil Science from Montana State University on a part-time basis.

Todd Hoitsma (Hoitsma Ecological, Inc.)

Todd Hoitsma is the owner of, Hoitsma Ecological, Inc., and specializes in riparian revegetation and aquatic system assessment and restoration. With more than 15 years experience in riparian management and related disciplines, Todd is well versed in all project phases including up-front feasibility and assessment components, project design and cost estimation, and implementation, construction oversight, and monitoring. Hoitsma Ecological welcomes challenging technical or financially-constrained projects requiring creative solutions and a solid understanding of riparian processes. Todd's experience includes remedial revegetation designs in highly impacted stream systems, permitting, design, and construction oversight for fish habitat restoration projects, and teaching revegetation and bioengineering sections of channel design short courses. Todd will provide expertise in all aspects of assessing wetlands and riparian vegetation including determining riparian condition and developing riparian and fish habitat targets for developing TMDLs.

Susan Higgins

Susan Higgins has 25 years of diverse experience in numerous aspects of water resource management working for university educational organizations, state regulatory agencies, and non profit organizations.

Susan has considerable knowledge of working with citizens' groups, boards and legislative committees, water resource planning, grant writing and fundraising, technical writing and editing, and program administration and budget development. Susan will provide stakeholder involvement and land use planning assistance to the DTM team in support of efforts under this contract.

Mike Compston

Mike Compston is a fifth generation rancher and provides consulting expertise in range management, grazing practices, irrigation efficiency, and sustainable agriculture. Mike has managed agricultural operations ranging from small feedlot and dairy operations to large diversified ranching and farming and food processing operations. Mike has assisted various agricultural operations maintain the balance between agricultural production and meeting state and federal water quality requirement while maintaining. Mike is accomplished at landowner outreach due to his first hand understanding of the challenges faced by today's agricultural producers. Mike assisted DTM and teaming partners on the Big Hole Phase 1 TMDL Assessment during our field reconnaissance phase. Mike was able to meet with local ranchers, assess the challenges they face, and make practical recommendations for modifying land use practices to help meet water quality and habitat objectives in meeting TMDLs. Mike is available for this contract on a part time, as-needed basis.

Kevin McNew

Kevin McNew holds a PhD in Economics and Statistics from North Carolina State University and was on the faculty at the University of Maryland from 1994 to 2000. He has been a Bozeman, Montana based consulting economist and statistician for the past 5 years. Recently, Kevin developed unique geo-statistical models to assist the development of the U.S. bio-fuels industry. He also currently serves as Chief Analyst for the Data Transmission Network (DTN) where he leads a team of researchers that develop agricultural crop statistical forecasting models utilizing GIS weather and satellite imagery data. Kevin is available to provide statistical sampling design and analysis expertise for projects accessed under this contract.

Ray Schwaller

Mr. Schwaller has 13 years of professional experience across the engineering spectrum including: civil, geotechnical, and environmental engineering. Mr. Schwaller manages a number of our active USFS, DNRC and utilities client projects. Typical projects have included stream restoration design, dam inspections and rehabilitation, engineering evaluations/cost analyses, AML restoration design, construction oversight, waste containment systems and impoundment designs, industrial wastewater systems and impoundment designs, geotechnical investigations and slope stability analyses, geosynthetics design and construction inspection, and seismic/geophysical investigations.

Alan Dreesbach

Mr. Dreesbach has 13 years of environmental permitting experience ranging from NEPA issues and Clean Air Act projects to Comprehensive Environmental Response, Compensation, Liability Act (CERCLA) actions, and Resource Conservation and Recovery Act (RCRA)-related evaluations. His expertise includes, site characterization and investigation, environmental monitoring and assessment, NPDES permit applications, permit maintenance, storm water run-on/run-off controls, state and local water pollution control rules, regulations, and industrial facility permitting, state and local groundwater protection programs, EIS and EA management, NEPA documentation and commited practices, plans of operation and bond calculations, mine reclamation and closure.

Table 4-4 below lists designated project managers, lead technical coordinators, and key technical staff for each service area in this proposal. Additional detailed information on personnel is found in Table 4-2 and Table 4-3 above.

Table 4-4: Project managers, lead technical coordinators, and technical staff for each service category.

Service Category	Project Manager	Lead Technical Coordinators	Technical Staff
3.5.2 Water Quality Monitoring – Lakes and Streams	Karin Boyd David Marshall	Karin Boyd David Marshall	Todd Hoitsma Kevin Harvey Tony Thatcher Debbie Kurtz
3.5.3 Water Quality Monitoring – Reference Sites	Karin Boyd David Marshall	Karin Boyd David Marshall	Todd Hoitsma Kevin Harvey Tony Thatcher Debbie Kurtz
3.5.4 TMDL Targets	Karin Boyd David Marshall	Karin Boyd David Marshall	Todd Hoitsma Kevin Harvey Tony Thatcher Debbie Kurtz
3.5.5 TMDL Source Assessment/Delineation	David Marshall Karin Boyd	David Marshall Karin Boyd	Tony Thatcher Debbie Kurtz Todd Hoitsma Jon Rieck Mike Compston
3.5.6 TMDL Load Allocations	David Marshall Karin Boyd	David Marshall Karin Boyd	Kevin Harvey Todd Hoitsma Tony Thatcher Debbie Kurtz Mike Compston
3.5.7 Total Maximum Daily Loads	David Marshall Karin Boyd	David Marshall Karin Boyd	Todd Hoitsma Tony Thatcher Kevin Harvey
3.5.8 Stakeholder Participation	Susan Higgins	Susan Higgins Karin Boyd David Marshall	Mike Compston Tony Thatcher Debbie Kurtz Jon Rieck
3.5.9 TMDL Effectiveness Monitoring	Karin Boyd David Marshall	Karin Boyd David Marshall	Todd Hoitsma Kevin Harvey Tony Thatcher Debbie Kurtz
3.5.10 Geographic Information Systems	Tony Thatcher David Marshall	Tony Thatcher David Marshall	Debbie Kurtz Jon Rieck Kevin McNew
3.5.11 Remote Sensing	Tony Thatcher David Marshall	Tony Thatcher David Marshall	Karin Boyd Debbie Kurtz Jon Rieck
3.5.12 Water Quality Modeling	David Marshall Tony Thatcher	David Marshall Kevin Harvey	Tony Thatcher
3.5.13 Statistical Analysis	David Marshall Karin Boyd	David Marshall Karin Boyd Kevin McNew	Tony Thatcher Kevin Harvey Debbie Kurtz

Service Category	Project Manager	Lead Technical Coordinators	Technical Staff
3.5.15 DEQ Electronic Data / Information Technical Assistance	Tony Thatcher David Marshall	Tony Thatcher David Marshall	Debbie Kurtz Jon Rieck Kevin McNew
3.5.22 Land Use Planning Services	David Marshall Tony Thatcher	David Marshall Tony Thatcher	Mike Compston Susan Higgins Debbie Kurtz Karin Boyd Todd Hoitsma

4.2 OFFERER QUALIFICATION REQUIREMENTS – SPECIFIC SERVICE CATEGORIES

4.2.1 Water Quality Monitoring – Fixed Station and Probabilistic Design

DTM is not applying for this service category.

4.2.2 Water Quality Monitoring – Lakes and Streams

Water quality monitoring of lakes and streams involves assessment of lake and stream conditions over a broader spatial scale than fixed station monitoring. The DTM team has significant experience collecting and assessing watershed characteristics, stream geomorphology, floodplain characteristics, and riparian habitats through a variety of methods. Members of the DTM team played key roles in developing stream field assessment methodologies utilized to collect data for development of TMDLs for the Upper Blackfoot River. Members of the DTM team are currently revising these methodologies for upcoming TMDL data collection efforts in the middle Blackfoot, Upper Big Hole, and Shields River TMDL planning areas. DTM can also augment field assessments through remote sensing and development of watershed models using GIS technology. Finally, we have considerable expertise in data management strategies and can provide data in approved database formats such as STORET and provide means to link these data to the National Hydrography Dataset (NHD) streams layer. The following table lists expertise demonstrated by the DTM team directly applicable to this service category.

- Geomorphic Assessments
- Remote Sensing/GIS
- Rosgen Channel Classification
- Classification of Riparian and Wetland Community Types
- Database Design and Programming
- Watershed assessment with GIS-based models
- Surface Water Quality Data Analysis
- Quality Assurance/Quality Control
- Habitat Assessment
- Substrate Composition Sampling and Analysis
- Customized Stream Assessment Methodologies

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1, 2, 3, 4, 5, 6, 9, 11, 14, 16, 17, and 19 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to water quality monitoring for lakes and streams requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional

information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.3 Water Quality Monitoring – Reference Sites

Characterization of desired physical, chemical, and biological conditions at least impaired sites is critical to developing reference conditions. These analyses will aid in the development of numeric targets for TMDL development. The DTM team possesses proficiency in field data collection, study design, remote sensing, GIS, and statistical analysis to use reference site data to develop appropriate and defensible numeric targets for TMDL development. Methods we have employed to establish reference conditions are listed below.

- Geomorphic Assessments
- Rosgen Channel Classification
- GIS-based modeling to identify watershed conditions
- Feature extraction of vegetation cover types from imagery
- Historical photo analysis
- Air photo interpretation
- Remote Sensing
- Surface Water Quality Data Analysis
- Classification of Riparian and Wetland Community Types
- Field assessment of riparian vegetation types, density, and health
- Fish habitat data collection and analysis (substrate and habitat structure)
- Quality Assurance/Quality Control
- Rapid Habitat Assessment
- Substrate Composition Sampling and Analysis

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1, 2, 3, 4, 5, 6, 9, 11, 14, 16, 17, and 19 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to water quality monitoring for lakes and streams requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.4 TMDL Targets

Developing TMDL targets requires an understanding of applicable numeric or narrative water quality standards. Targets represent water quality goals that represent the standards and result in beneficial use support. Targets can be based on numeric water quality criteria, pollutant concentrations or loads, habitat or geomorphic measures, and or biological criteria. The DTM project team has direct experience in developing TMDL targets using a variety of measures gained on TMDL development

efforts on the Upper Blackfoot, Big Hole, and Shields River watersheds. For these projects, innovative approaches were developed to generate TMDL targets.

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1, 2, 4, 5, and 14 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to developing TMDL targets requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.5 TMDL Source Assessment/Delineation

Identifying sources of pollutants and impairment is a challenge in waters impaired by nonpoint sources. The DTM team employs a combination of field assessments, aerial photo analysis, GIS technology, remote sensing and watershed modeling to identify sources of impairment and estimate contributions from various sources. We have experience identifying sources of impairment from a wide range of land use activities including agriculture, urban development, silviculture, and mining. The following lists a number of techniques we have employed for TMDL source assessment and delineation.

- Geomorphic Assessments
- Remote Sensing
- Rosgen Channel Classification
- Classification of Riparian and Wetland
- Community Types
- Pollutant Modeling
- Benthic Sediment Data Analysis
- Surface Water Chemistry Data Analysis
- Bank Surveys
- Rapid Habitat Assessment
- Substrate Composition Sampling and Analysis
- GIS Modeling

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1, 2, 3, 4, 5, 14, 16, and 17 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to TMDL source assessment and delineation requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP

and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.6 TMDL Load Allocations

Developing a load allocation for TMDL involve assessing the portion of a stream or lake's loading capacity is attributable to identifiable point and non-point sources of pollution or to natural background levels. The TMDL source assessment and delineation must be completed before the load allocation can be developed. The DTM team has used a variety of techniques to develop load allocations including GIS-based models, field assessments of impaired habitat and reference conditions, hillslope erosion estimates, road crossing and road sanding load estimations, and bank erosion inventories. In all cases, it was required to distinguish between natural and anthropogenic loads.

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1, 2, 4, 5, and 14 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to developing TMDL load allocations requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.7 Total Maximum Daily Loads

Developing Total Daily Maximum Loads for impaired lakes and streams is the synthesis of the previous three tasks, TMDL source assessment and delineation, TMDL load allocation, and TMDL targets. TMDLs are defined as the sum of the wasteload allocations to point sources, load allocations to non-point sources and natural background sources with a margin of safety considering seasonal variation. TMDLS can be expresses in terms of mass per time, toxicity, or other appropriate measures that relate to the State's Water Quality Standards. The DTM project team took an innovative approach to developing TMDL's for the Upper Blackfoot River watershed. TMDLs were expressed as targeted reductions in processes and conditions leading to sediment delivery to streams combined with substrate and biological endpoints. We are currently working on development of similar approaches for the Upper Big Hole and Shields River TMDLs.

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar

to that required for this service category include project numbers 1, 2, 3, 4, 5, 6, 9, 11, 14, 16, 17, and 19 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services towards developing Total Maximum Daily Loads requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.8 Stakeholder Participation

Stakeholder participation is critical to the success of the TMDL program. Landowners, regulatory agency personnel, land managers, and concerned citizens should be included during all phases of TMDL development and other natural resource related projects. The DTM project team has been involved in stakeholder involvement at various levels in our projects. We have conducted focus groups to solicit local knowledge about resource concerns and priorities and often use maps to facilitate this process. The DTM team is augmented by Susan Higgins, with 25 years of experience in multiple aspects of water resources, and Mike Compston, a fifth generation rancher and agricultural consultant who both bring considerable skills in stakeholder outreach.

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 3, 4, 6, 15, 16, and 18 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to stakeholder outreach requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.9 TMDL Effectiveness Monitoring

Effectiveness monitoring is can help in evaluating the outcome of TMDL plans and can be used to provide useful information to adjust those plans as needed to meet TMDL goals. The DTM team can assist DEQ in development of these monitoring plans or implement already developed plans. The DTM team is well versed in providing data in an approved database and GIS formats and producing reports as required. A list of tasks used to accomplish these goals is as follows.

- Geomorphic Assessments
- Remote Sensing
- Rosgen Channel Classification
- Classification of Riparian and Wetland Community Types
- Database Design and Programming
- Benthic Sediment Data Analysis
- Surface Water Sampling and Data Analysis
- Quality Assurance/Quality Control
- Rapid Habitat Assessment
- Substrate Composition Sampling and Analysis
- Customized Stream Assessment Methodologies

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1, 2, 3, 4, 5, 6, 15, 16, and 18 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to TMDL effectiveness monitoring requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.10 Geographic Information Systems (GIS) Services

Project team members have been utilizing GIS analysis and presentation techniques on watershed and water resource related issues for over 12 years. These projects include watershed assessments for both public and private clients. Throughout these projects we have been developing custom GIS-based techniques and applications for compiling and analyzing spatial data. These include tools for extracting and summarizing stream and watershed characteristic information from Digital Elevation Models, the National Hydrography Dataset, and numerous other data sources. These tools complement and provide input for both traditional and GIS-based analysis and modeling. The result is more efficient and accurate analysis of data. In addition, unique approaches to TMDL assessment have been undertaken by the DTM team using GIS, including the development of GIS-based Geomorphic Risk Assessment and Metallic Sediment Risk Assessment models. These models serve as valuable screening and targeting tools where detailed hydrologic or land use information does not exist.

The project team is also well versed in providing cartographic output for use in reports and public meetings. Maps can be output in paper, electronic, or GIS project format. The GIS skills possessed by the DTM team include

- Pre-processing GIS data for use with hydrologic modeling software
- GIS based watershed assessment models
- Geomorphic Risk Assessment Modeling
- Sediment Source and Delivery Models
- Cartographic Presentation
- Data Conversion for use with GIS
- Data Compilation into GIS
- Database Design and Programming
- Custom GIS applications

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1-12, 15, and 18-26 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to GIS services requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.11 Remote Sensing

Remote Sensing data sources can provide an economic way to collect data from large geographic areas for use in watershed analyses. Remotely sensed data sources such as aerial photography and satellite and airborne sensors can provide important blanket coverage of the study area for little cost. Additionally, archived imagery is an important source of information for assessing historic impacts or changing conditions within a study area.

There are several sources of imagery that can easily be incorporated into a project: DOQs, LandSat, SPOT, IKONOS, to name a few. Each source offers unique characteristics for analysis. Automated multispectral analysis can be performed on digital imagery containing distinct spectral bands of data, leading to an understanding of vegetation and ground cover characteristics within the study area. Traditional visual analysis can result in detailed information such as stream bank locations and condition, agricultural operations, forestry cutblocks, soil erosion, geology, and mass wasting. Our expertise includes the following.

- Air Photo Interpretation
- Extraction of indicator metrics from imagery
- Soil erosion and mass wasting interpretation
- Forest harvest interpretation
- Multispectral image interpretation
- Hyperspectral image interpretation
- Link interpretations with NHD dataset
- Database Design and Programming

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1-6, 12, 15, and 19-21, in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to remote sensing services requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.12 Water Quality Modeling

Water quality modeling is often required to analyze and distill large amounts of investigation and monitoring data into the information and graphics needed for decision-making. In the last few years, water quality software have been linked to GIS such that existing hydrologic and spatial information can be pre-processed in a GIS, exported to hydrologic modeling software such as HEC-RAS, HSPF, or MODFLOW, simulations run in the modeling software, and results ported back to the GIS for further analysis and display. In addition, risk assessment models for sediment, metals, nutrients, and pathogens can be created within a GIS to facilitate screening and targeting of areas with potential acute problems. DTM team members have experience with traditional hydrologic and water quality models and data preprocessors such as SWAT, HSPF, QUAL2E, CORMIX, BASINS, PLOAD, SSTEMP, and SNTEMP. DTM is expert at developing simple GIS-based models when budgets do not support development of a comprehensive, watershed scale hydrologic models.

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1, 4-6, 11, 19, and 25 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to water quality modeling services requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.13 Statistical Analysis

Statistical analysis is a key component for deriving meaningful conclusions from environmental data. Moreover, developing an appropriate study design before environmental data are collected will increase the likelihood of success as well as be more cost-effective. The DTM project team includes Kevin McNew, PhD, a Bozeman based professional economist and statistician with over 10 years of experience in statistical analysis and study design for agricultural applications. With the help of Kevin McNew DTM team will develop efficient study designs and provide comprehensive data analysis that includes statistical tests of hypotheses. These services will provide detailed information and statistical evidence that will help DEQ in the development of credible and defensible TMDL targets.

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1-7, 9-12, 15, 19-21, and 23 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to statistical analysis services requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.14 Analytical Laboratory Services

DTM is not applying for this service category.

4.2.15 DEQ Electronic Data/Information Technical Assistance

The DEQ needs to be able to easily transmit water quality data into the modernized STORET database and make it more accessible to data consumers and the public. The DTM team is well versed in providing technical products, services, and support, to migrate datasets to production database system(s) and improve data flow and data quality from a variety of sources into STORET. Our experience includes technical support for data conversion, reformatting, and other tasks for support of specific data quality objectives; technical solutions for data entry, data capture, and data reporting, maintenance, upgrades or enhancements to existing software interfaces; technical support in the implementation of STORET; acquisition of STORET-compatible data deliverables. With our extensive knowledge of databases, GIS, and other digital data management techniques, we are prepared to provide extensive support to DEQ in this area.

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1-5, 8-12, 15, 18, 22-24, and 26 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to DEQ electronic data and information technical assistance requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

DTM and teaming partners have completed numerous projects requiring the skills sought in this RFP and through this have gained knowledge of the requirements for providing high quality, cost effective environmental services and providing quality assurance. Please refer to section 4.1.3 for additional information.

Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.16 Heavy Equipment Operators

DTM is not applying for this service category.

4.2.17 Revegetation Services

DTM is not applying for this service category.

4.2.18 Watershed Coordination

DTM is not applying for this service category.

4.2.19 Communication/Education Services – Information and Education

DTM is not applying for this service category.

4.2.20 Communication/Education Services – Contract Administration

DTM is not applying for this service category.

4.2.21 Communication/Education Services – Information Transfer and TMDL Technical Editing

DTM is not applying for this service category.

4.2.22 Land Use Planning Services

Land use planning in rural areas can include agricultural management plans, grazing management plans, timber harvest management, water resources planning, TMDL development, irrigation efficiency, and others. The DTM team has completed numerous projects where land use planning is a significant component. These projects include TMDL development, watershed planning, geomorphic assessment, and sediment transport analysis. In addition, DTM has conducted several urban/rural-planning projects examining growth trends, assessing land value on a landscape scale, and providing county master plan revision support. As TMDL development progresses downstream into urban environments, urban growth planning and water quality planning will be closely related issues. The DTM project team is experienced in both of these areas and is prepared to undertake these projects.

References

Project references for this service category are listed in Table 4-1. Projects requiring expertise similar to that required for this service category include project numbers 1-9, 11, 15, 16, 18-21, and 24-26 in Table 4-1. Please refer to this table for more information.

Company Profile and Experience

Providing services related to DEQ electronic data and information technical assistance requires the skills DTM and teaming partners offer. Please refer to section 4.1.2 for more information on the DTM team company profiles and experience. All DTM and teaming partner professional staff that will provide these services has at least a bachelors degree in the relevant fields listed in the RFP. Please refer to Table 4-2 for a summary of personnel qualifications in this proposal and Table 4-4 for a table of project managers, lead technical coordinators, and technical staff designated for each service category.

Method of Providing Services and Quality Assurance

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Staff Qualifications

DTM and teaming partners bring extensive experience in various environmental services to all of our projects. These qualifications are described in detail in section 4.1.4. Please refer to Table 4-2 and Table 4-3 in this section for more information.

4.2.23 Preparation of Technical Manuals or Circulars

DTM is not applying for this service category.